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Individual Project in the Liberal  
College



INDIVIDUAL PROJECT IN THE LIBERAL COLLEGE

BY

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A.B. University of Nebraska, 1894

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Submitted in Partial Fulfillment of the Requirements for the

Degree of

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IN

THE GRADUATE SCHOOL

OF THE

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THE GRADUATE SCHOOL

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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPER-  
VISION BY R. C. Dentley

ENTITLED Individual Project in the Liberal College

BE ACCEPTED AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE  
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# INDIVIDUAL PROJECT IN THE LIBERAL COLLEGE

## CHAPTER I

### STATEMENT OF THE PROBLEM

This study lies within the general field of higher education, but within the junior-college, as distinguished from the graduate and professional schools. Its purpose requires that the distinction be kept clear also between this field of "the college," which for our purposes is the historical "academic" college, and the technical college, or any vocational school. The study proposes to test the claims of such a college to a right to separate institutional existence. As a good reason for such separate institutional character, it is proposed to sound the claims of the college to a pedagogy of its own. By proposing a "pedagogy" for the academic college, the implication is intended that the teaching art and its explicit cultivation present a sufficient reason for higher institutional organization, as they have long done in lower schools. The perfection of the teaching of the high school presents as strong an institutional claim as does any other stated purpose of secondary schools, not excluding the vocational. No such demand for the college has yet been acknowledged in practice.

An ultimate purpose of the study is to reach actual precepts of collegiate pedagogy. Its hypothesis is to affirm the expectation that the liberal college has a reason for institutional existence and an obligation to acquire and maintain an institutional integrity, which shall be expressed in organic features. This expectation may be set forth as follows.

We simplify the problem by waiving all appeal directly to





vocation. By hypothesis the institution to be studied is a finishing school. The place and value of all vocational and professional schools are intended to be enhanced, in no sense questioned, by this specialization. A liberal college, evidently, is shorn of reason for existence unless it can justify itself by an improved human output, which must be expressed in results of what we have called an improved pedagogy. If in this sense it affords no improvement of what is called the person's preparation for professional studies, we must grant at the outset that we have begged the question of personal culture.

This quest of a justification for such an institution may not be made, however, chiefly in the region of such abstract practical determinations. The ends of material production, put in terms of the types of service we call vocation, are not guaranteed to have consulted the facts of human development for their warrant. It is for the purpose of establishing an answer to developmental demands that we resort first, in Part I., to an effort to lay a philosophical basis for collegiate education. The philosophy adopted, at least as a point of departure, and applied, seems fully to justify the belief in the existence of a "liberal period" in human individual development. This period is, of course, shortened more or less for all by the technical demands of preparation for, or pursuit of, life-work. Depending upon the personal culture and skill of teachers in all grades, and even especially of teachers of the arts of vocation, all periods have a right to be liberalizing. But the question we propose to face is of the devotion of a stated period to distinctively liberal pursuits. Such a period, if allowed, lies between the elementary period of necessary education



and the higher period of actual vocational and professional preparation. Why not call it the secondary period? It must, to be sure, lie within the period called secondary, which period has a right to be one of strenuously extending privilege of personal development; but we are just now made conscious, even to defend an elementary period from the greed of exploitation, of the fact that vocational education is at least distinctly secondary, as contrasted with elementary. The fight is the same in principle, whatever period we try to protect, a struggle for the education of the individual person against the exploitation of his powers to render services. In the elementary period it is humanitarian. In the secondary period it becomes a question of important individual development.

In the inclusive field called the principles of education,<sup>1</sup> this essay is within that of principles of collegiate teaching. It can only be, however, rather preliminary in that narrowed field than furnishing actual precepts of practice for collegiate teaching. It offers itself in terms of what, in elementary pedagogy, was called "general method." The "special method" of collegiate teaching must be provided by teachers of such subjects of study as offer themselves for the collegiate curriculums. It remains, then, but to state the place these chapters might fill in a general collegiate scheme, which must be outlined to show the exact intent of this monograph.

A theoretically complete system of collegiate practice would embrace principles (axiomatic, empirical and theoretical), which would be a platform for such practice. Such practice implies an institution. A collegiate institution implies teachers as the

1. Ruediger, Wm.C., Principles of Education, Sch. Monographs No. 2, pp. 88-118





agencies for conceiving the meaning of subject matter and applying the principles of method. Supplemental to this is all the 'instrumentality' which 'agency' uses. (For the sake of completeness) this may be stated to include teaching organization and administrative organization. The purpose of administrative organization is to facilitate maximal efficiency of teaching organization. Teaching organization exists to produce maximal learning efficiency, which is the institutional end. A complete scheme would include housing and equipment and their hygiene.

The work in hand turns out to be a study of thinking as the essential activity of learning. It must endeavor to find all the implicit precepts it can apprehend. It must, in the nature of its own peculiar task, render explicit all principles of thinking and learning that come into view. "A person in pursuing a consecutive train of thoughts takes some system of ideas for granted... Some context, some situation, some controlling purpose dominates his explicit ideas so thoroughly that it does not need to be consciously formulated and expounded.... Yet the fact that reflection originates in problem makes it necessary at some points consciously to inspect and examine this familiar background. We have to turn on some unconscious assumption and make it explicit."<sup>1</sup> If the matter of a certain few books were in the reader's mind, such a context would be carried, but the task of the study would still be distinct, though abbreviated to a mere application of an adopted psychology and pedagogy to collegiate education. Instead it must "consciously formulate and expound" so much of these fundamental doctrines as immediately underlies the pedagogy of the

<sup>1</sup>.1. Dewey, J., How We Think, p. 215. More particularly, Dewey's Philosophy of Education is chosen as background of this discussion.



college. We make whatever apology is due these authors for applications they might not approve. In extenuation we can only plead the demand of the times for applications.

This study of collegiate pedagogy is not addressed to students but to collegiate teachers.<sup>1</sup> It would be proper to address the collegiate student with suggestions for the rational improvement of his student-work. There is much evidence that he realizes its need of improvement. Aids for the improvement of study as an art are already beginning to appear.<sup>2</sup> Their acceptance and active use will follow the arousal of interest, which in turn will follow the serious interest of teachers in their part of the enterprise. The interest of teachers may be expected to be only moderate until the ideal of trained service for a professional art gets vogue. The conjecture here made is that such interest will be subject to mere exhortation until the work of students has acknowledged character. Critics fear little challenge hitherto in placing a very low rating upon the current supposition of student-industry. It will be easy to err on the side of premature and cock-sure formulation of methods. It will be still easier to fill the student's atmosphere too full of our own over-sanguine suggestions of untried methods, doubly out of place: first, as being ours rather than his, and second, as being in a state of development, not yet ready for formulation. Collegiate education may not be in so much danger of sophisticating its students to a condition of self-consciousness of method

1. See Dewey, Phil. of Ed., Ch. XIII, The Nature of Method.

"Learning demands unconsciousness of processes. Teaching demands consciousness."

2. See the various books on "How to Study."





as the elementary school has been, but the rule that method comes before its formulation<sup>1</sup> is universal, and here as elsewhere the college should profit by mistakes already made.

Still this caution does not forbid giving first attention to the methods of learning as those taking precedence in every way. But it implies a limitation of first effort to those things which may well soon be made objects of the attention of students themselves.

This limitation ought to serve the purpose also of concentrating first attention upon elementary needs. We wish to find the first principles. They should be the conscious possession of the collegiate teacher. Their application will be by precepts addressed to both teachers and students. "Method-consciousness" is a teacher's professional privilege and duty. His business is to teach, that is, to help make the student successful in his business. The student's business is not the same, nor does it involve the same kind of "method-consciousness." One may be conscious of the other's art and thinking. The other's consciousness is ideally, not of processes but of objects, not even of his own processes as such, to say nothing of the mental activity of another. The first objects of students' consciousness, at least, are expressed in precepts of ideal and end, simple and definite, something which presents itself in such form as to guarantee it as worth while -- something to do and think-out. No one can be his teacher who cannot do somewhat more and something different in its nature from this. This differentiates completely the platform of method of student and teacher. Student-method ought to evince itself first. Teacher-consciousness of student-method is the beginning of the development of teacher-method. They may safely be kept in this order. The student is to

1. Dewey, How We Think, p. 113.



be conscious of an end worth working toward. This is objective. Means and methods of attaining this end may be themselves so rationally attached to the end that the methods are themselves objective. The teacher's path is parallel, but as distinct as if divergent. One does his work in absorbed, objective, unselfconsciousness. The other parallels him throughout with increasing capacity, if the thing succeeds, to intensify his appreciation of what it means to do things so, and what shall be the way to improve and perfect the performance observed.

Now to substantiate aims, ultimate or mediate, requires a philosophy of education. What things are worth the doing and thinking which are to constitute the student's endeavor, and why they are worth it, are questions that are answered only by a philosophy of education. It is conceivable that such a philosophy might separate this question of subject matter from method. Such a possibility helps to show the importance of a choice of philosophy. Our choice, in this case, has everything to do with both, because it seeks their complete amalgamation. Such a philosophy is bound to be equally interested in 'what' and 'how'. It will not altogether differentiate its appeal to its estimate of values from its appeal to psychology and logic for an account of how we think. It is a matter of more than incidental importance that the author of this philosophy was the pioneer in formulating a dynamic psychology, to which we may incidentally appeal. But finally the question of how we think deserves the fullest possible consideration. Without disallowing the inseparableness (in importance, at least, if not in every aspect) of subject matter and method, it remains a matter of the utmost importance to collegiate pedagogy to know what the





exponent of a complete system of psychology may be able to teach. It may be admitted, as frankly as we made the free choice of a philosophy of education, that Washburn's Movement and Mental Imagery has been chosen as a further guide to thinking, because it is a dynamic theory and because it deals subtly and with convincing satisfactoriness with the psychology of 'determining tendency' or 'problem-idea'. For our purposes, no more than for the psychologist's, is it a matter of ultimate importance whether the scheme of movements used to characterize psychological process is absolutely true. Perhaps it is of less importance to us, because our purpose is so utterly practical. Not that it is not of importance to pedagogy to base itself upon a true psychology, but that it may nevertheless have its practical purposes well served by a plausible scheme of movements which might have to be revised in minute particulars for psychological truth's sake, without being in the least vitiated as adequate basis of pedagogical precept. At any rate we use the one thoroughgoing theory which consistently gives a dynamic account of thinking. The practical advantage for our purposes is that which inheres in the objectiveness of treating psychological phenomena in a language constituted of the physiological movements posited as their correlates. Movements are very tangible objects of our thinking, even if they must be conceived of as microscopic or less than microscopic in their amplitude.





## PART I

## PHILOSOPHY OF HIGHER EDUCATION

## CHAPTER II

## INTRODUCTION TO A PHILOSOPHY OF COLLEGIATE PEDAGOGY

Behind any essay a philosophy expressed or implied doubtless lies. It is here assumed that this study of a particular field of pedagogy will profit by a statement of its philosophy at the outset. It is believed to be an element of satisfactoriness in the philosophy we choose,<sup>1</sup> first that it is not metaphysically ambitious about 'ultimates', but is sincerely a philosophy for practice, and, second, that its own field of application, elementary education, is not the one we wish to treat. If we do violence to the author's beliefs as to the way in which it should be applied in higher education, we do so in ignorance of what application he would make in that field. A philosophy which declares itself moreover, as by definition a "generalized theory of education" challenges an effort to accommodate any ideas on education one may want to live by, to test both the ideas and the philosophy. I am not sure that one must be a pragmatist in philosophy, or be assured that a biological philosophy is a complete universal scheme, to profit nevertheless, for such a purpose as ours, by accepting the expressions of evolutionary biology as the terms which are pertinent to education. Evolution, growth, progress, achievement, seem inevitable as expressions of education's purposes.

We might proceed with only so much of apology for the adoption of this philosophy, but it is incumbent to forecast a little

1. Dewey, John, Democracy and Education, An Introduction to the Philosophy of Education.



further what seems necessary to apply it to higher education. In applying this philosophy to the elementary grades of school, its author has become famous in advocacy of the claims of 'the social'. Perhaps it is fairer to say that the philosophy has been made to appeal through illustrations from elementary school-practice, than to say that it has been applied in elementary schools. At any rate we propose no severer test of it than will be incidental to testing higher educational theory and practice by its main tenets. The genetic difference between elementary and higher education may be expected to draw contrasts without doing violence to the great principle of adjustment. The difference we are inclined to find most pronounced is in this fundamental contest between sociality and individuality.

To dissolve this dualism by interpreting the individual in terms of the social is certainly much less pertinent in higher ranges of the individual's life. Where elementary education faces the problem of adaptation through socialization, it is equally true that higher education faces the problem of adaptation by individuation. Much of elementary education has been undertaken by primitive man as unconscious adaptation in which "ends"<sup>1</sup> rather than "aims" operate as they do in lower stages of evolution. Higher education supplants these primitive, racial, adaptations of childhood by mediate adaptations, differentiatinal in the interest of perfecting individuals, though this individuation may be, in turn, tending toward higher social ideal. It must be the individuating process of higher education that makes education something more than a successful unconscious factor of racial adaptation. Even a

1. See Howerth, Educational Review, January, 1917.





vigorous exploitation of individualism (as a developmental, not an ethical, term) is wholesome as a defensible reaction for higher education against a pervasive doctrine of adaptation for the race's sake. Education has no way to express itself biologically more significantly than in this compensating doctrine of individuation. Above childhood it is the prevailing factor. Education must finally express itself best in individualism.

It is only in the individual activity we call learning, thinking, coming to know, accumulating character through experience, that we secure a principle for higher education. It must be that such standards of value as we have, educational as well as ethical, are much less the vague, averaged, high, low, and median, than the actual achievements of individuals. The achievement of individuals leads on to the expectation of individual achievement, and this is platform for the expectation that individual help can be given to individual achievement. Higher education is nothing less than the stamp of approval on this expectation, the way in which society deliberately tries to supplement the very service to the race of individuals by increasing their individual value.

One thing for which we are indebted at the outset is a definition of education which we make free to apply within our field. Whatever else education may be, its institutional aspects always present two parties to the undertaking. If it is a vital process, those two parties are distinct and both subject to modifications by the processes of teaching and learning. Apply it strictly: nothing could be more wholesome for the collegiate teacher to contemplate than the fact that he ceases to be a teacher when he ceases to be modified as one of the agencies, or when he fails to



improve the quality of human material in both parties. That the learner's is the point of view of first importance, to which the teacher's function is subordinated is part of this insight. The learner's is, of course, what it must be considering who he is and what the problem of learning in his particular case must be. The teacher's point of view is, in one sense, determined also by who he is, but if it is not adjustable to the particular mechanism of the situation represented by this learner and this problem, he is only by courtesy of convention "the teacher." His real superiority as a teacher abides only partially in the fact that he has traversed the roads to the goal, has discovered the pitfalls and short cuts and finally perhaps the best route; only partly in the fact that the learner's attitude is that of problem, while the teacher's knowledge has both the advantage of organized finality and the pedagogical embarrassments of the same. But the teacher's real superiority, if it exists, lies chiefly in the fact that he is adequately sympathetic with the learner's state of mind, and appreciation of the terms and processes of problem, as problems must lie before the learner. Not the least important distinction of collegiate learner and teacher, but one that is all too largely overlooked, is the requirement that the collegiate teacher should be older than his student in every important sense. This fact will bear repeated attention.

Preliminary to a philosophy of higher education, is a tentative definition of higher education, to be constructed in part as hypothesis for the criticism of Dewey's philosophy of education so far as it is to serve for higher as well as elementary, and in





part by differentiation of higher from elementary education.

It is in the nature of life to continue in being. Does the process of adaptation by which the social continuity of life is effected, that is education as a means of this continuity, suffer diminution in degree or kind as adulthood is approached? In the sense of the necessary transmission of that minimum of nurture which successfully adopts the individual into his tribe even at a high stage of civilization, the span of elementary education is even now being criticized as too long. The introduction of the junior high school is chiefly advocated upon the ground of a need to improve individuation rather than mere social transmission. However, such distinctions are not to be too nicely made and the question as to whether there is need of a long continuance of conscious socialization may safely be answered in the affirmative, whether for mere adaptation or for individuation, processes which fortunately cannot be wholly separated.

It must be noted that when the question of "transmission of culture by communication" is involved, the history of primitive education shows that conscious efforts to educate took place rather in those activities which we now call "secondary" than in those most primitively connected with adaptation to the tribe. Mere living with children, in other words, is a safer assurance of elementary education than of the stage where more specialized tribal customs must be inculcated, to say nothing of any education which can attain to a type called "human." Especially as "the gap between the capacities of the young and the concerns of adults widens" and formal education has to begin, does the significance of the upper ranges of that increasing gap increase in larger ratio; until



in time, as now, the limitations are not in the space and the matter but if any, are in the individual and his limitations, whether of social opportunity, of capacity, or of interest.

There is, of course, the accompanying danger that the higher will especially be subject to estrangement, or "isolation," as Dewey calls it, from life experience. Yet even so, there is the fact that the farther we recede from the mere necessities of adaptation to the tribal customs the less becomes the urgency that school practice shall not be isolated. It is <sup>in</sup> elementary education, that the fear of the predominance of 'literacy' prevails, and it may be that higher education as a liberal undertaking will have less to struggle against than elementary in the way of traditional encumbrance when it seriously takes up the problem of its own renovation. It may profit, both by copying the reforms of elementary education where they are pertinent, and by realizing the differences which may even give it historical advantage. It is well to keep in mind, at any rate, what has been said about the claims now being made for an earlier cessation of elementary (tribal) education in the interest of an earlier engagement in the more individuating performances of what is called secondary education. On the individual, psychological side this need of individuation increases as adolescence progresses (always modified, of course, by the striking social claims of adolescence, of whatever sort). The approach to a more consciously individuating type of work as appropriate to the collegiate stage is progressive, and may even have been obscured in late years by the too indiscriminating application of the social precepts.

The apprehension of a tenable psychology of elementary edu-





cation upon which to base an acceptable practice has been slow, at least as we see it in the perspective of a very recent past. This is shown in Dewey's masterly chapters V, and VI especially. Students of secondary education on the side of improving its practice are beginning to study the way in which their exemplary practitioners of the art of elementary education succeeded with the philosophies of Herbart and Froebel, and may well devote some time to a mastery of the insights of Dewey's Chapter VI, on "Preparation, unfolding, and formal discipline." There seems no good reason why secondary and higher education should either repeat mistakes so recently made, or fail to build more rapidly upon tested and sound foundations. To repeat errors so recently made will be sufficient reflection upon the sincerity of higher pedagogy, as ignorance can not be safely pleaded; but to proceed without shortening and improving, not to say without recognizing mistakes, will be to open to question the scientific character of higher pedagogy at the moment of its beginning. Processes that have been already explored must be short-circuited or modified as experience has taught. Elementary education, for example, has only just become conscious of the fact that its productive psychology is the psychology of learning, to be first attacked that it may duly regulate approach to the subordinate psychology of teaching. To repeat the groping process by which this has been learned would do no credit to the ordinary sense of the collegiate pedagogist. A body of experimental results is fast accumulating in the laboratories of the new field of educational research. Elementary education accepted itself, with whatever imperfection of insight, as an art worthy of empirical study, at the very time when experimental science was first strongly asserting



itself even in the pure sciences. It has the blemishes, of course, as well as the merits, of being an actual pioneer in the days of pioneering. What it has done deserves especially the careful review, not only of scientists in general, but of students of the newer sister ( or daughter) science of higher education. All experimental results that are acceptable for the purposes of higher education, deserve to be sifted and assorted for this purpose; will increase in value often, for their original purpose; will increase in scientific value by being subjected to new scrutiny with reference to new applications; and contain, moreover, in the nature of the case much original pertinence to the education of near-adults rather than of children. A test of the sincerity and experimental competency of the new pedagogy of higher education must lie in its capacity to assess for itself the applicable results of experiment already performed; in its ability to take its part in performance as it is being improved, both of experiment and practice; and, especially in its capacity to avoid presumptions, not to say ignorant repetition de novo; in a word, to take the place which the recent history of educational science has clearly prepared.

This recent discovery mentioned a moment ago, that the definition of education must account in due order for the activities of two persons, first a learner and second a teacher, seems simple enough to have been always involved. Of course it always has been, but the profit seems to come at last in the access of dignity which comes to the function of the teacher, when he finds his professional niche no less important than that of the functionary who must know the psychology of the learner, but must know it as a specialized activity called learning, building up a body of applied science of its own, revealing such expanding hints of its unlearned possi-







bilities, that, as he progresses in this science, he finds his own function as expert agent of that performance opening out before him as no mean or unimportant incident. If the teacher is still a complacent by-stander moved only to that interest in learning which sees it as an inscrutable, implanted instinct or the inviolable group of interacting instincts which need most to be let alone, he has the initiatory insight of the teacher; but he is only on the threshold of the professional privilege which awaits the eager student of the science and art of teaching.

If the science of the elementary teacher has cleared its own way by a period of child study, by an apprehension of the genetic principle in psychology, by a differentiation for itself of the field of learning in the field of psychology, it has incidentally opened up to higher education, the instantly expanding vision of a calling of immeasurable importance. In primitive education the tribe did succeed without conscious art in elementary education. In secondary education, differentiated "educational" means entered unconscious of the evolutionary part they played, but the era of higher education, in a real sense not yet consciously opened, may open its conscious existence in the midst of a historical background, not long but very real, of developed educational practice. If the insight of the psychology of learning yielding a real function of teaching, is one that opens a new future for elementary education, it is an insight without which, it seems fair to say, higher education as a genuine pedagogical adventure could scarcely have meaning. If it is worth much to lower education, it is worth everything to higher. If instincts could compass a respectable amount of education, unconsciously supported by the mere life of the tribe; it is



by the converse operation of that principle in negation, that we see adulthood void of sufficient corresponding "native powers" to effect anything which could be called education. The upper stages of 'the 'period of infancy' are the stages which test its availability, for the education of which, nevertheless, we know man to be capable. It needs no other proof than mere notice that, while tribal adaptation is a function which unconscious social evolution may supplement organic evolution to perform, the very idea of that individuation implied in civilization is an educational enterprise which will stand at a minimum by default unless conceived and contrived as the highest art to be developed by human ingenuity. If higher education, at least collegiate education, awaits in bewilderment the pronouncement of its vital commission, may it not fairly be expected to come in terms of the acknowledgment of the professional paramountcy of teaching?

These two poles of the educative function, learner and teacher, constitute one of the few dualisms Dewey labors to emphasize rather than dissolve. The vitality of the teaching process is subject to various tests. It goes without saying - is in terms of definition - that the learner should be changed by the process. A more subtle test is as to whether the teacher is modified. We have just noted primitive elements of vitality in learning, as itself a process which may attain, especially in elementary stages, a degree of consummation without, or in spite of teaching. The test of the teacher, even there, is in his modifiability to adapt to an evolution in which he may otherwise become only an encysted excrescence. It is in that higher education of the individual which we are trying to conceive, that the unmodifiable teacher may even







defeat the process. Where elementary education is the token of adjustment by adaptation, much of which will take care of itself, higher education is inconceivable except as an individuating stake-setter for differentiations. There is no such thing as teaching which can tolerate the supposition of unmodifiability in the teacher. It is this fundamental fact that pronounces the ineptitude of conservatism in higher education. Many collegiate teachers' preparation for their office has been the most contradictory inrutting of their own intellectual character that could be conceived as negation of even a willingness to foster a liberal and progressive attitude in learners. Teaching is a vital process or it is no adjunct of the vital process of learning. Learning is differentiating and progressive, or it is certainly not that individuating learning which should characterize higher education. Readiness to be changed, that is, to be the teacher-associate of learning, is a teacher's qualification for the college too often not even acknowledged.

It was a function of the elementary teacher to improve the character of the environment and thus to improve the quality of human experience. Primitive elementary education was an educative situation for the child, because the presence of his elders so constituted it, and the quality of human experience has ever since been subject to the improvement which the essentially inventive tendency of the child produces in interaction with the conservative sagacity of his elders.<sup>1</sup> The presence of elders enforced itself as an educative necessity. To turn, for contrast's sake, directly to the institutional conditions of modern higher education, we find first an enormously greater demand, if possible, for the presence

1. Chamberlain, A. F., The Child.



of elders. Higher education sins on the side of over-attention to the preservation of civilization's tribal attainments. This must be done beneath the threshold of higher educational function, so that its real individuating and progressive function may not be interfered with nor left undone. But higher education's shortcoming, intrinsic to its very meaning, is the lack of youth's "elder's" in it. Not that tribal elder whose function carried itself because he was an elder, but the "elder" in that wisdom which knows these things we are discussing - that elder whose added experience is illuminated by the light of its educative significance. Higher teaching may by no means be done by the apprentice. Higher "teaching" that has left out the presumptions of all that may be meant of the superiority of experiential eldership is not teaching in the sense in which that word must be understood to justify the demand that "the teacher must improve the quality of human experience." This one fact alone, that much college teaching is done by the novice who would asperse the doctrine of his teaching obligation, if he had ever heard of it, leaves college-teaching almost an unexplored art.

Keeping the terms of the same contrast in mind, it is worth while to raise the question whether the greater age of that pupil who is collegiate student has increased or decreased the demand for institutional, formal attention to his education. We are not driven to those facts in the history of education which show an efficacy of private, tutorial education almost unknown in our own day of institutions and mass instruction, but may observe the phenomena of education of outstanding individuals even in the midst of institutions, to find that the significance of such educational





experience is not largely connected with the institutions except as the institution furnishes a teacher. The problem of individuating is made more exacting by reason of the increasing social complexity, but probably much less so in the college than in the elementary problem of adaptation and adjustment. Or, not to violate the principle of adjustment, which of course, is not remitted, though modified, it is enough to recognize the fact that the increasing numbers of persons who must be afforded the higher education necessitate the development of adequate institutional modes. The question is a practical one, and yet it is not only the increasing complexity of society, affecting, as we have seen, the lower education most, nor simply the practical necessity of accommodating more persons; but we may safely expect that the nature of higher education itself will argue the appropriate institutional agencies which will express in an organic way what the science of collegiate pedagogy may demand. It would be a well-nigh fatal negation of the scientific character of the enterprise, to be compelled to admit at the outset that organized institutional machinery of higher education could not be devised. Machinery means an adaptation of means to ends. If a problem of collegiate education takes form as such, its definition as a problem implies its institutional solution. To provide for and secure an association of the older with the younger with an educative end in view appropriate to the age and interests of collegiate youth would be to provide a collegiate institution. To write in the adjective which states the particular educational purpose is the next step; to write it "academic" or "cultural" college suits our particular purpose, and serves us with a type in which fidelity to the first principle, of



ideal association of youth with elders for a liberal educational purpose, may be most typically invoked. This is but one of the types of college which the present movement toward curriculum-making will give us, but it has the typical merit of being the one which will have to struggle most directly with the traditions of higher and secondary education; the type which will need most cautious bracing with the solid principles of pedagogy which the more unsophisticated practical (technical) colleges have unconsciously developed. Most important of all, this will be the college in which both the strain and the rewards of educational self-consciousness will be greatest and yield the most lasting pedagogical fruits. This college will have the conservative advantage of intentionally trying out, with new interest in things old, what is stock in trade of the whole cumulus of educational experience, and using what is for the present economically necessary even where changes are contemplated. These points may be slightly amplified in a summary of the relation of Dewey's definition of education to a definition of collegiate education, before passing on to the philosophy of collegiate education.

Education has the conscious office of husbanding the processes which provide for intellectual "nutrition" and "reproduction." The collegiate stage of this process should be distinguished from, rather than confused with the earlier stages. But this distinction may not, without reflection, declare the difference so great as to absolve collegiate education forthwith from any of the fundamental differentiae which enter into the definition of education. In fact, if instead, for hypothesis' sake, some of these be demanded





as necessary to definition of collegiate education the effect is somewhat startling: (1) There are two parties to education (as there are two aspects - learning and teaching). (2) Both of these are modified in disposition by the process. Is the college teacher not truly a teacher when he fails to be modified by teaching? This may prove one of the most fertile suggestions to hold in mind, at least till it prove not relevant to collegiate teaching. It seems not unlikely that it holds true in such a way as to differentiate collegiate, or near-adult, teaching by peculiar sorts of mutual modifications increasing as such teaching finds its most vital status. (3) Must the collegiate teacher also improve the quality of human experience, or does this obligation cease with the teaching of children? This would be a queer sort of negation to try to hold as a positive doctrine. If collegiate teaching may be held to this obligation, what must be the whole platform and its underpinning upon which such an expectation may be based? How far shall we have advanced professionally toward dissipation of the too long-enduring delusion that collegiate teaching is connected somehow only with the interests of abstract science, while human improvement must take its chance?

(4) It is part of the definition of education as a process that one of these parties shall be older than the other. This demand raises no sort of question when elementary education is in mind, as with Dewey. But the careful use of terms here where education is being actually defined as that socially "nutritive" and "re-productive" "self-renewing" process which transmits through "communication," which is a "sharing of experience," gives us just the word which may be used discreetly to supplant the mere temporal



aspects of 'older' and 'younger.' Where experience is the element the teacher is older for purposes of teaching if he is the party with experience to share. There is the demand that the collegiate teacher be distinctly "older" in this sense, not lacking at the very least, the wisdom which genuine experience gives to make him the superior in discretion, insight, and consciousness of a teaching purpose. It takes no argument to prove that the greatest single lack in the high school is the lack of disparity in age between teacher and pupil as measured by the mature wisdom of the person who ripens to the teacher's work in the even warmth of a genuine professional purpose. And yet the high school has espoused the doctrine of preparation for its teachers, while the college is still content to trust the intellectual growth of its students to teachers not yet acceptable as serious apprentices for high school-teacher training.

(5) The increasing complexity of society and the increase, very rapid in the last few decades, of knowledge and technical modes of skill, entail respectively heavy burdens upon elementary and higher education. It will be part of the whole treatment of higher education to show that its share of this increased obligation is peculiar to it because it is higher education. Although there are respects in which civilized life entails distinct obligations for formal apprenticeship to mere living beyond the resources of the family or unorganized sociality of the community, it seems likely that the real burdens of complexity will increasingly impinge at the upper border of youth, where more and more profound intellectual preparation for individual burdens will have to be made. General education has burden enough, to be sure, in the overwhelm-





ing demand for universal diffusion of the training which as secondary, was but yesterday regarded as the privilege of leaders. Who knows how soon the education we now call higher, the collegiate part of it, at least, may be oppressed with obligations of the same sort, for which it may be still more unready? There are many signs that the state universities, made integral part of an unbroken public school system, have, for many, obliterated a supposition that their work in life could be as well done without collegiate education. And such work is not thought of by them as the work of "leaders." The obligation to give them good teaching well into their near-adult years bears down heavily upon the state, which has not yet solved the problem of perfecting the teaching of the high school. That this collegiate work is more exacting, more difficult, calls for more mature and better-trained teachers, is implied in the mere fact that it deals with older, more experienced, wiser and more discriminating students, to say nothing of the fact that at present it is to be done away from home with all that is implied in that revolutionary change in the student's type of living and self-depending.

(6) But, finally, by definition, the present demand for formal education is enhanced and its problems particularized by the fact that modern life widens the breach between school-experience and home-experience. If elementary education has had a perennial struggle against this tendency, what do we know? and what especially have we increasingly to contend with, in a higher education which as yet has attained no unsophisticated rationale of its existence? Higher education has a hoary history to be sure, but collegiate education, as the modern community has begun to demand



it, is one of our youngest institutions. The question which a discussion of it will have to answer is this: Is collegiate education more, or less, subject than elementary education to the embarrassments of the split which appears between experience as it is in life and experience as it forms itself in the school?

(7) The purpose of Dewey in dealing with elementary education leads him to stress more heavily than ever, if possible, the essential sociality of education, as he himself has led the thought of educators for the past two or three decades. The one dualism which he makes more pointed and even renders acute, while he succeeds in its philosophical solution, is the antagonism of social and individual. If not, why is one so strongly impressed with a conscious propaganda for socializing school-education? The best that can be said for the individual is that his definition is found in terms of social meaning. Let it be so, whether finally, or for argument's sake. I propose to be at some pains to inquire whether it may not prove to be as significant an emphasis in collegiate education to find its test in the claims of the individual as the functional educational factor.





### CHAPTER III

#### THE COLLEGE-STUDENT

We are now used to the idea of the school as a social institution. The democratic idea of institution carries with it the presumption of sociality. There is bound to be some negation of this presumption when the specific purpose of the school we are here dealing with is taken fully into account. The collegiate student is now nearly enough adult to have definite intellectual purposes assert themselves. That collegiate institutional purpose must be maturely serious is doctrinally assented to. The college-student is babied on the side of externals and justly resents it. He naturally shirks the onus of responsibility which he is not duly encouraged to shoulder. On the side of expecting performance without motive there is, also, short-sight and small result. Genuine adult thinking, the inescapable obligation of the collegiate student, is a pragmatic factor in evolution. Dewey's critics<sup>1</sup> make a poor case against him when they fail to realize that to be such a factor by no means bars thinking from being also an exercise of sheer play-enjoyment. No evolutionary factor is disqualified by being the object of the redundant repetition of play-activity. Rather the contrary. But in thinking we have an activity that is most characteristically individual and non-social, in contrast to the many factors which depend upon group-relations, a factor rather super-social in its best manifestations. The rising structure of science the public have little to do with. The organization of thought is by special groups of chosen thinkers with a leader.<sup>2</sup>

1. Cohen, M.R., John Dewey's Philosophy, New Republic, Sep. 2, 1916, pp. 118-9.

2. Ross, E.A., The Organization of Thought, The Am. Jour. of Soc. Nov. 1916.



Fewer and fewer persons are able to exercise an influence upon thought as it becomes technical and special. Its organization is a group affair, but the thinking itself is an individual matter, and one for which persons have to be more and more carefully prepared. It is an individual contribution that has to be made for the social whole, rather than worked out together by any large group. It is the capping achievement of human activity, but is an achievement made by individuals, so far as it is the kind of thinking that is more than bare adaptation. Such thinking is the kind that is often lauded for its uselessness as sheer exploitation of a high capacity for enjoyment, but that is no limitation of thinking, just because it is a characteristic of it. It is done after, and so necessitates, social thinking as its background, but in itself it is a unique excursion into solitude.

If this interpretation of the activity called thinking is admitted, it gives us one of the most striking distinctions between higher and lower educational institutions. Indeed I am not sure that we are not awaiting the acknowledgment of this distinction for the respectable habilitation of a higher institution which lacks nothing so much as to take itself seriously. Training and socializing are but two of the three cardinal aspects of human education. These two bank upon habit and are comparatively primitive handmaids of survival. Thinking, also genetic, builds upon these, as freedom builds upon habit, but manifests itself best, not in merely serving survival, but in distinguishing the sample of what may be. It is no disparagement of the genetic, pragmatic service of thinking to exalt it as a fruit of evolution. It is no less a factor in the development of social man because it is the





distinguishing mark of the best individual samples.

The idea so often recurring, of the dominating importance of "shared activity" may come to the point through repetition where one has lost sight of the complete meaning of the phrase. To be sure the theme, where Dewey uses this expression is the adaptation of the immature by the mature's manipulation of environment, and the school is shown to be an instrumentality for such legitimate manipulation. Initiative of the individual in the process is no small nor unimportant part of the school's obligation, but there comes a time when initiative is not merely an important condition, but when the institution must be organized on the idea of the individual's initiative as its foremost pedagogical principle. Put in this way, the most glaring defect of collegiate education is placed in the foreground, and an ideal for its reconstruction set up with no equal conflicting claim. To individuate and to secure collegiate performance by individual initiative will be found not only consistent with, but fundamentally necessary to, the understanding of any principles of collegiate education that may emerge.<sup>1</sup>

The prime obligation of childhood's education must not be postponed. Social impulses must be provided for, but these impulses are not so much outgrown as finally taken for granted, because the period comes in which they must be assumed as sub-structure. The direction of education which must be effected by a training of the young person's sense of common social value of conjoint activities in situations which furnish occasion for sequence of acts for a common purpose is the thing distinctively characteristic of that stage in which the native impulses must be social-

1. On the foregoing paragraphs, cf. Dewey, Philos. of Ed. Ch.II.



ized, because men live in groups, and have developed life-customs for which individual impulses are not provided by nature. In fact it can only be done normally in childhood. In childhood this process must, in a sense, be completed. Family and immediate community expand into larger environment with some new stimuli, but enlarging sphere is changing sphere; stimuli are not identical. The turn of the individual comes at latest when family and home-community are exchanged for educational institutional environment that lacks many of the social claims of earlier environment. Especially, by hypothesis, is the academic college a place which does not have a civic community, as does the high school; and more than that, has a stated purpose for the individual which takes the place of the more social, less personal, purposes of the home-community.

The social features of collegiate life have been overdone, and have tended to defeat the purposes of personal culture which cannot be effected without manifestation of power to isolate oneself and to do individual work.

It would be a mistake, however, to assume that the over-socialization of collegiate life is sheer perversity, or that a principle of earlier development has been remitted and deserves no further attention. In fact the most successful part of collegiate living has been the part that has developed with unrestricted function of social proclivities. It is where effort has been made to exclude, rather than use, sociality, that the college has had least success, and the disparity between its intellectual failure and its athletic and other organized successes, is a challenge to comparative analysis. This emphasizes its social successes but does not argue that all its successes must be social.





"Intentional education" signifies a specially selected environment, the selection being made on the basis of materials and method - specifically promoting growth in the desired direction."<sup>1</sup> We are only just passing out of a period in which the college has lacked a tenable statement of educational purpose. It may now become a place especially favored in this regard. It is sufficiently absolved from the primitive social obligation to be the freest institution to state its purpose and live up to it. The technical colleges have done so. They are in so far exemplar to the academic college. Students give much evidence of being ready to choose according to such definite educational purposes as are understood in technical colleges. But students may not be depended upon to conceive the pedagogical obligations involved in framing the ideals. This is itself a technical task of direction which may do exactly what Dewey's precept demands. Conceive the educational purpose, learn the changes that must be made, construct an environment for the purpose, apply its precepts sincerely, and make the academic college an institution that is a directive influence for the age and type of person who can choose to traverse the section of road in which it pretends to be guide.

The conception of education as growth<sup>2</sup> presents some controversial difficulties, but these scarcely restrain the full use of most of the precepts which apply to childhood. That immaturity is a "power" of growth rather than an empty capacity is a truth which gathers significance as we approach the higher stages, where

1. Dewey, Philosophy of Education, p.45. Cf. upon these paragraphs, Chapter III., Education as Direction.
2. Cf. Ibid, Chapters IV and V.



"habituation" may be an increasingly effective "leverage" for the conscious development of "active habits." "Habit" is rescued from the bad implications sometimes exclusively made and the identification of habit with "mechanical and external forms of action" is corrected by the assurance that mental and moral attitude are as certainly habitual facts, and that the best side of habit is not its routine, conservative character, but the intelligent power it may exhibit to modify an environment toward one in which intelligence is to operate in the formation of new habits themselves. And "there are habits of judging and reasoning as truly as of handling a tool, painting a picture, or conducting an experiment."

Growth is not a term, however, exclusively applied to the child. These increasingly intelligent aspects of growth argue most important phases of it, with corresponding phases of education belonging to the adult. "The difference between child and adult is the difference between modes of growth appropriate to different conditions. With respect to the development of powers devoted to coping with specific scientific and economic problems we may say the child must be growing in manhood. With respect to sympathetic curiosity, unbiased responsiveness, and openness of mind, we may say that the adult should be growing in childlikeness."<sup>1</sup> The faults of doctrine with regard to growth are mostly mixed up with the notion that the adult environment is accepted as a standard for the child. Perhaps, conversely, the college is victim of an opposite, if not corrective, notion that schooling is schooling, that pedagogy is pedagogy, that once formulated for the school of the child we have formulated the principles of pedagogy, and the college

<sup>1</sup> Dewey, Philosophy of Education, p.59





is only an older child's school. If an improved doctrine of growth will help correct this error it will be hailed at once by collegiate pedagogy.

Less a correction, and more frankly a new insight, for higher, and especially for secondary, education is one of the chief corollaries of Dewey's chapter on Education as Growth.

"Since in reality there is nothing to which growth is relative save more growth, there is nothing to which education is subordinate save more education....the purpose of school education is to insure the continuance of education by organizing the powers that insure growth."<sup>1</sup> Now it is true enough of life itself after school that it gives scope for the growth for which schooling thus prepares. But this relationship, not to unorganized life, but of one school to another has been sadly overlooked in the matter of college-preparation. If the high school, without any compromise whatever of its own liberal purposes, might be frankly regarded as the "habituating background," the "leverage" of the collegiate "active habits," it would be most consistent with such expectation that high school experience should serve with much inerrancy to designate those prepared to pursue collegiate life and to do collegiate "growing." The conception of college-preparation as a choosing process is altogether consistent with the presumption that collegiate "active habits" can turn only upon successful high school "habituation."

It is more the privilege and obligation of higher than of lower education to keep itself superior to routine, and to husband the finer and maturer aspects of intellectual plasticity and growth.

<sup>1</sup>Op.cit.p.60.



"Infancy" is here to be extended on its intellectual side - "re-organizing, reconstructing, transforming." The high school's minor obligation to prepare some, perhaps many, by habituation in it, to the appropriate activities of the college, is a faint type of the college's 'preparatory' privilege, though it ought not to be different in kind. This privilege of collegiate habituation is not simply against the routine of ordinary living, but against the deadening routine of ordinary thinking. The present habituation of the college for the active habits of growing that are to follow is not only indifferently small in degree, but is wrong in kind. The flexibility of "advanced infancy," where are the possibilities of continuous adult habits of intellectual growth, it is the obligation of the college more than any other institution to foster. The college is not living up to its educational privilege unless it is purposely organized to nurture habituation in reorganizing, reconstructing, transforming, the active habits of thinking by which men may extend their adolescence indefinitely. The obligation of college teachers to refrain from helping to "set" the minds of their students is the obligation implied by this fact of the always unrealized further plasticity of a young man. The liberal college is not doing its most characteristic work when it is merely preparing for the professional school. It is the institution conceived to afford the broader and freer thinking and choosing implied by these upper ranges of human plastic possibilities. It is no disparagement of the particular preparatory purposes that the method of living and thinking and growing there should be the method of such intellectual habits as may fairly still be called growth. This is the value of genetic study as applied to adolescence and





the college as well and as appropriately<sup>as</sup> to childhood, boyhood, and the lower schools.

In the sense of its main thesis, that the method of growth is thinking, Dewey's doctrine is immeasurably more applicable to those stages of individual growth where the intellectual aspect of thinking (if one may so put it) is the predominant aspect, and where the imminently important method of intellectual habituation is that which guarantees unfettered active habits of thinking to follow. Education is living away below its privileges when, in the midst of it, the adolescent is settling into the molds of the static minds of teachers. The college teacher who reiterates his beliefs is taking a risk of this kind.

A statement in Dewey's chapter twenty-two<sup>1</sup> is so important at the beginning of collegiate doctrine that it ought to be brought back here and allowed to help lay the foundation of a genetic doctrine of the college:

"As maturity increases and the student has a greater background of familiarity upon which a new topic is projected, the scope of more or less random physical experimentation is reduced. Activity is defined or specialized in certain channels. To the eyes of others, the student may be in a position of complete physical quietude, because his energies are confined to nerve channels and to the connected apparatus of the eyes and vocal organs. But because this attitude is evidence of intense mental concentration on the part of the trained person, it does not follow that it should be set up as a model for students who still have to find their intellectual way about. And even with the adult, it does

<sup>1</sup>Dewey, Philosophy of Education, p.355. (Underlining for the purposes of this paper).



not cover the whole circuit of mental energy. It marks an intermediate period, capable of being lengthened with increased mastery of a subject, but always coming between an earlier period of more general and conspicuous organic action and a later time of putting to use what has been apprehended."

This statement both serves Dewey's purpose to protest against the restraint of the various activities proper to the student who "still has to find his intellectual way about," and to point out the corresponding fact that real study of such problems as are appropriate to collegiate study is a type of trained activity which must intervene between the random activity of the mere explorer and the applied activity of the person who has worked out his problems and faces professional performance. "Learned profession" has greatly expended its meaning as a phrase. It has done so both by the improvement of the character of the professional school and by the dependence the professional school has placed upon the training and sifting powers of a collegiate course. Professional training is improving itself by recognizing the period in which students have to be made. The college will improve itself by recognizing the gravity of this opportunity to make students. And the word 'student' will have to get its best meaning as applied in that stage and institution where individual experience superadds to its instructive power to find its way by physical activity, the power to settle down to the task which is involved in problems to be solved.

Throughout his discussion Dewey is at great pains to emphasize the increasing demands and educational possibilities of the expansion of science. It is at this point that the college finds its place in that extraordinary development. Not apprentices,





but students, must be the answer to the demand that the schools shall meet this expansion. It does not set the college off as a peculiar educational institution, so much as it reveals its charter to enlarge the field of secondary education on the intellectual side. For Dewey the lower schools must improve their method by participation in the subject matter which makes the life of the community. This principle never abates its hold. But for the upper ranges of secondary education, especially, including an expansive college, the form this demand takes is increasing competence to live by the methods which identify themselves with the problematical aspects of scientific living. We have no choice, we may no longer live by the unscientific "according to nature." The burden of science and its methods upon us are still primitively mild in the lower schools compared with the inescapable obligation to make students in the higher schools.



## CHAPTER IV

## THE COLLEGE-TEACHER

If the central fact of collegiate education is the student, the axial center upon which his student-life turns is aim. A chapter on Aims in Education<sup>1</sup> is basis for a soundly constructed doctrine of collegiate teaching. "Education as such has no aims, only persons," consequently they are varied, differing with different persons, and with the same person at different times. Aims are not in things and enterprises, they are in persons, and cause persons to accept responsibilities; help persons to make observations, choices, plans. Aims give continuity and persistence to the experience of persons. A student's work has not begun if it is not animated by his own aim. Yet it is the common experience that collegiate work hangs upon teachers' aims, and looks to teachers' dictation for its fulfillment. Good aims must be founded upon the intrinsic activities and needs of the given individual to be educated. Selection of ends by others, and making them so uniform as to neglect specific powers and requirements of an individual, are abuses of this principle. So in every way aims are of the greatest importance to the doctrine of an adequate organization of individual students' work. Teacher's aims which provide for no subordination to the more important aims of the learners, are aims in divergence from legitimate collegiate purposes.

Through the extremes of "education according to Nature,"<sup>2</sup> with all its grotesque deficiencies, simmering down to the one blanket failure of Rousseau to realize the pragmatic principle that native impulses are in themselves neither good nor bad, we come

<sup>1</sup>Dewey, Philosophy of Education, Chapter VIII, Aims in Education.

<sup>2</sup>Ibid, Chapter IX.





finally to the doctrine of the enfranchisement of the individual against imperfect society, and in, rather than against, a society conceived to be the individual's normal environment. It gives us at last an opening for a restrained and intelligent doctrine of the part which individualism may play in a well ordered higher education. The interplay of the reasonably sobered and adapted individual gives us at last a conception of a democratic citizenship in which the machinery and presuppositions are perfected and only human selfishness remains to mar complete harmony. Certainly no grown-up citizenship is conceivable without a frank application of the democratic principle throughout, and the kind of higher education we are exploring means nothing except under democratic ideal. "Ultimately social efficiency means neither more nor less than a capacity to share in a give and take of experience." This enlightened unselfishness which must make a tolerable society through individual power to tolerate and be tolerated, can mean nothing less than an individualism of a fine type at that stage where education is doing its best and highest work. "If democracy has a moral and ideal meaning it is that a social return be demanded from all, and that opportunity for development of distinctive capacities be afforded all."<sup>1</sup>

It is impossible to give space to any complete summary, even, of a philosophy of the collegiate teacher. Several chapters of Dewey's Philosophy of Education make specific contributions some of which may simply be listed; and a few questions may be jotted down with the expectation that such formulation of doctrine for collegiate procedure as we shall engage in will make a beginning of answer.

<sup>1</sup>Op cit., p.142.



Chapter ten, on Interest and Discipline, opens for us the question of the scientific aspects of incentives, for example. We have space only for some of the questions, yet more or than than we shall, by any means, be able to answer, or even forecast.

College learning suffers from indifference to study. The thin air is ransacked for excuses both tacit and unblushingly exposed. Is it true that the type of appeal made by athletics is impossible to study? We have, at any rate, the current proof that the apparent incapacity for enthusiasm is not real, though this is little consolation.

Is a study of student-activities likely to yield any help to a reconciliation of the apparent antagonism represented by athletics and studies? Is the difference perhaps one of method, which can consequently be bridged? Watch the methods of student-activities. See what they show which studies lack. How far do they exhibit (1) initiative not allowed in the usual method of prosecuting studies? (2) scientific methods, not employed by studies? (3) responsibility not expected in studies: an independence of petty calendar requirements accompanied by strict exactions, nevertheless, of severely tested results, implying an efficient use of time? Can a requirement that a student refrain from a holiday (e.g.) take the place of an expectation that a student will so regulate the use of his own time that a stated result, will accrue? Are results stated in any shape which gives certainty that time will have to be used judiciously to get acceptable results? Is the teacher ever used, in a position, comparable, in the good natured expectation of expert arbitrariness, to that of a coach? If he is recognized as expert, and an authority upon the matter at issue, why may he not





become an agency of a class's voluntarily organized effort, in the way in which they use a coach? Can the college teacher attain such a relation to the work of his class? Is it desirable?

Why does a class ignore a suggestion from the teacher that such and such a book is so germane to the present work before the class as to make it almost necessary to read it? Why do teachers have to request students to read such things with the expectation that the suggestion will be ignored, even by students who would be interested intensely if they made the effort to get the book? Is there anything to be gained by securing a spirit of emulation answerable to the social judgment of the group rather than of the teacher? Is it guaranteed that a teacher could produce the same feeling of apologetic shame on the part of the individual student for not knowing what the teacher knows, that could be produced by the felt censure of the class-body? Why should not this attitude toward the class be secured? Is it not present in the student-activities? How is it secured there? How is it made effective to secure work from individuals? What are the limits of social claim of this sort? Would it be as wholesome if a peculiar power in a teacher could secure such an attitude toward him? Does he suffer at all in other functions left peculiarly to him, if he turn this influence over to the class itself?

How does debating secure full interest of an individual? What kind of an educational project is it? What is its psychology as compared with class-work even in the same, good student in the same subject? Does it involve principles which would be applicable in class work - e.g.: rivalry, record, scientific measurement of results, scientific ordering of procedure to make a rivalry sig-



nificant? What do we know of the successes of certain high school teachers in answering these questions?

A danger to the unwary in following Dewey along to that conclusion of chapter nine which dissolves the dualism between self-sacrifice and spiritual self-perfecting, is that a very necessary function of education will be buried under the refinements of ideal. Ideal may hold up social efficiency and culture as synonyms; in fact it is a splendid improvement of both terms to have this identification made; but the process of amalgamating them in the experience of an individual in "a naughty world," is a stupendous and disheartening task. This ought not to discourage from holding the ideal, which cannot be abated; but ought to strengthen conviction as to the need of setting high, but not impossible, goals for present attainment.

Social disinterestness is a most characteristic mood, not steady or permanent enough to be left to persist without help, but a pronounced "nascent power" of the adolescent. It is perhaps the burden of Royce's chapter on Individualism in The Philosophy of Loyalty, that the proof of individual culture is in a loyalty which is at least likely to be social. There is much room in Dewey's doctrine for a definition of self-development that identifies the aims of self and society. Real unselfishness is a better quality than is even present at the stage when the adolescent is, as it were, exploiting his capacity for altruism. But it is the part of sagacious educational practice to use all useful instincts at their appropriate time to make the best individuals possible. Unless higher education shall do its best to perfect all the forward-looking powers of such individuals as it can lay its hands upon, the very possibility of the evolution implied in democratic, or any





other, ideal vanishes from the scheme of things as they are and as the ideal hopes they may become.

This Chapter on Interest and Discipline is no less important for a philosophy of higher education than to furnish a platform for the central pillar of such a structure. Collegiate education will take a new lease of life when the present method of pursuing fragmentary lessons, as parts of subjects of study organized and foreseen only by specialist teachers, gives way to some scheme in which individual projects, which take shape from such experience as the student has, shall make a real chance for the psychological laws of learning. "The act of learning or studying is artificial and ineffective in the degree in which pupils are merely presented with a lesson to be learned."..."This connection of an object and a topic with the promotion of an activity having a purpose is the first and the last word of a genuine theory of interest in education."..."A reorganization of education so that learning takes place in connection with the intelligent carrying forward of purposeful activities is a slow work. It is a challenge to undertake the task of reorganization courageously and to keep at it persistently."<sup>1</sup>

In chapter eleven, on Experience and Thinking, we have the theses developed (1) that experience is an active-passive affair, not primarily cognitive, and (2) that the measure of the value of an experience lies in the perception of relationships or continuities to which it leads up. It includes cognition in the degree in which it is cumulative, or amounts to something, or has meaning. The college is especially victim of the method of "actor and

<sup>1</sup> Dewey, Philosophy of Education, pp. 158-161. See also p. 378.



spectator" in its extreme form. Exhortation to "think," "appropriate knowledge by direct energy of intellect," is about as far as collegiate pedagogy has gone with this problem. The results of misguided effort to divorce the physical quietude of "thinking" from bodily activity, are more painfully apparent in the lower school; but it must be in college that the evil results to thinking are most acutely due to the false dualism of mind and body.

The phenomena of "conceptual thinking," the place of "meaning" in the process, the subordination of drill, the false relations of things and relations, the separation and isolation of perceptions, ideas, and judgments, the misconception of genetic order; confusion of words and ideas, the mistaking of "pseudo-ideas" and "half-perceptions" for a vital experience; the heresy that relationships can become perceptible without experience; that "mind" can grasp if it will "give attention," and that this attention can be given at will; the ineffectuality of theory without experience, and in fact all the important aspects of the psychology of thinking are, if not better illustrated in the college, certainly more fatal in their violation there.

"Reflective experience" may be said to be a consummation the college exists for - to secure the thinking which is "the intentional endeavor to discover specific connections between something which we do and the consequences which result, so that the two become continuous."

The college has a task worthy of its existence if it may actually make thinking take the place of routine and capricious behavior.

..."Only gradually and with widening of the area of vision





through a growth of social sympathies does thinking develop to include what lies beyond our direct interests." This is the meaning of higher institutions of learning.<sup>1</sup>

What the graduate school tries, at least, to do, in the way of instituting a chance for individual problem, the undergraduate college will have to do as well or better, because thinking is not thinking except in the pursuit of problem. The uncertainty, doubt, suspense, inquiry, looking into things, investigating, - the "inquiring" which precedes "acquiring," the seeking, quest - in a word research, always "native," "original" with him who genuinely carries it on, no matter how many others know it already - this is the proper work of the collegiate student. The "general features of a reflective experience" are the rules of collegiate procedure.

If not in collegiate thinking, then where shall that consummate paradox of thinking be manifest as the experience of more than just the favored few who do scientific work - the paradox of impartiality of the thinker, whose identification with his own reflection is complete. The proof of the genuineness of his thinking finally must be that he can use his preferences to inspire and motivate his observations and reasoning, yet without allowing them to modify the "stuff" of them.<sup>1</sup>

Nowhere better than in studying the college student's function as an independent thinker could a doctrine of the individuality of learning be developed. The dynamic character of one's world of culture revolving on its own center is especially enforced in chapter twelve. It is a defect in the teacher to be regarded as

<sup>1</sup>Dewey, Philosophy of Education, pp.172-3.



having complete compass of a closed circle of experience. The implied defect in the learner is that he must fail of the kind of stimulus from the teacher to which he has a right. Without such studies his learning cannot be dynamic. If the learner aims only to enlarge his own circle to approach the (conceived) circle of perfection of his teacher, the process of his learning is in so far wrong. It must be centrifugal on its own center (to risk pushing the comparison to extreme), seeking tangent to its own circle, working on eccentric and erratic lines, if necessary to find individuality, which are lines of his own force, at least; breaking through the circle of the teacher, if its periphery lies across these lines of force. It must be possible (by hypothesis of genuine learning) to cross in new lines over any boundaries. Boundaries negate the real teacher-attitude, and dissipate student-force. "The essentials of method are identical with the essentials of reflection. They are first that the pupil have a genuine situation of experience — that there be a continuous activity in which he is interested for its own sake; etc."<sup>1</sup> This is the foundation of the doctrine of 'project' we intend to develop.

A pivotal insight in Dewey's Philosophy of Education for the purposes of collegiate pedagogy is that of the relation of subject matter and method. The one thing hitherto neglected has been method. The one thing upon which all attention has been focused has been subject matter. It had to be by way of the reconciliation of the assumed dualism in their essence that attention could be drawn effectively to the consideration of method. While method was considered mere form and subject matter substance, anybody

<sup>1</sup>Dewey, Philosophy of Education, p.192. (Chapter XII. Thinking in Education.)





knew enough about the tendency of modern philosophy to know which one to choose so as not to lose intellectual caste. It is not strange that a philosophy of education is feared when we realize the residuum of mental content which the word "philosophy" carries for him who knows little more of its history than that it is an "unreal" belief which it was once no disgrace for a "scientist" to hold. "Form" and "substance," whatever improvement philosophy may have made for their content as terms, are about as far as we could get from the respective meanings of method and subject matter. In fact it seems fair to say, as hinted, that this distinction has been responsible in a degree for the fear to tackle method.

When method offers itself as merely the way in which subject matter shapes itself for pedagogical purposes, or better, the way in which the activity acts, which activity is a necessary part of the meaning of subject matter, one is driven to quarrel if one must quarrel, with the concept of activity itself rather than with method. If inclined, still, to convict of the lingering concepts of an older philosophy, the suggestion of the "actual existence" of "activity" could set the wheels of thinking as easily as the puzzles of "form" and "substance."

When method is taken to be the way in which action moves toward results, we have it already understood as orderly, and its ordinary connotation is rather restored than confused. Its test will be its effectiveness. Moreover its perfection will be both the consummation of the teacher's conscious art and the complete unconsciousness of method as something separate.

We might fairly characterize our crudeness in collegiate method by noting the fact that, although it is in subject matter



as surely as subject matter is a pedagogical term, we have not found it there, but are inclined to try to put it in when we become conscious at all that it should be there. It seems too simple to be called a discovery, but challenges our acceptance as such, that what we are inclined to despise as "method" is nothing more nor less than the degree of actual completeness of our own knowledge of our science. We do not despise method of knowing, but of teaching. But we seem to have passed through our own experience of learning, may we say too successfully unconscious of it? to be able, without more attention than we are willing to give it, to realize that the method was there. This brings us to the startling confession that all we have as scholars is due to that margin of good method over poor by virtue of which we have made the progress we acknowledge. If the process was uneconomical we have the more to face as teacher's obligation.

This is but saying, for our purposes as collegiate teachers, that subject matter and method have been falsely estranged in our imperfect conception of them which imperfect conception may, in the nature of method itself, have made us pay part or the price of our own ineptitude in our own learning experience. What pedagogy demands of us, is that at the very least we shall let our teaching profit by this discovery. The method of our learning was bound up in the process by which we say we have become possessed of knowledge, or scholarship, in our science. Like the enterprise said to "have money in it," because the man confessed "he had put it in," that is not subject matter which is devoid of method, but subject matter "with method in it," just because it is known, knowledge, acquired, organized, ordered, methodized.





In this problem of collegiate teaching then we have reached a dualism discovered, or created, by that very insight which has dissolved the false dualism of subject matter and method. It is the distinctly different point of view of teacher and learner. We have seen that, along with help for our pedagogical thinking, Herbart is credited with having generated an exaggerated idea of the schoolmaster's importance. The schoolmaster's serviceability, duly subordinated to the enterprise of learning, is not conceivably to be overestimated. But the teaching function, regarded as not simply different from, but organically independent of, even superior to, or prior to, the learning process, got a fatal vogue, which the collegiate teacher has done much less than the elementary teacher to analyze and understand, and finally to restate. We come honestly enough, historically, by the idea of improving method by improving teaching. It is not so easy to comprehend the fact that any teaching we do will be by grace of that margin of more or less accidental success we may have in divining our personally lost art of learning. What method we possess may be hidden from us while it functionates in what teaching we do. It does revive itself if we really teach, for if we really teach we help somebody to learn. If somebody learns, method functionates in the process. It is the privilege of the learner that it should be unconsciously implicit in his learning. It is the pedagogical obligation of the teacher that he should be richly conscious of what is taking place. If then his teaching knows learning and its natural way of working, and fosters the process, he has method. So conceived, what would be left of that heresy, which drags "pedagogy" into disrepute, that it is "handing out recipes and models to be followed in teaching."



A test of a real art is that it dies with its possessor, and must renew itself in the experience of everyone who becomes an artist.

Most points in the chapter on the nature of method have a special pertinence to higher education, in many cases more profound than to elementary education. The consideration of method as general, as well as individual, lays a platform for the whole consideration of the subject of collegiate learning and teaching as that in which method is eminently a necessity. That each learner must make his own reaction in any case, in no way relaxes the obligation both to economize his learning energy to the minimum, and to base his individual method upon all that has been universalized as fundamental to it, as well as to furnish for the learner's use the utmost of what has been universalized as method of such a procedure as his. This opens the great uncharted domain of collegiate learning.

But the traits of individual method, the few "attitudes" which Dewey cites of the many characteristics of good individual learning method, are the more appropriate to higher education, as higher education is superior to lower as individual method of learning. Directness, openmindedness, singlemindedness, responsibility, might well be illuminated and hung before the student's eyes; but better than that, in fact they must, become understood and assimilated until the learner really is actuated as a matter of course by methods of learning which stand the test.

It is impossible that method, when duly conceived, should interfere with initiative and individuality. To the question of what "general method" must be this chapter makes an enticing challenge.<sup>1</sup>

<sup>1</sup> Dewey, Philosophy of Education, Chapter XIII. The Nature of Method.





The discussion of subject matter and its nature<sup>1</sup> is one of peculiar importance in the selection of types of collegiate institutions. The conception of subject matter as social is one of vital importance to the cultural college. Other types of college have freely chosen their subject matter as something which determined their choice of type. It has been questioned in this paper whether a social environment is anything like so essential a feature of the collegiate learning itself as a process as it is held by Dewey to be in the case of elementary learning. But from the point of view of content, breadth and depth of knowledge involved, and social value of the problems, it is especially significant that a criterion should be applied in the choice of cultural collegiate material. Such a criterion is that of social worth. This, rather than a social environment in the college itself, is the social meaning of the college. Its natural problems are those which deal with human living. These are the essentials, and essentials come first. For this collegiate purpose, the problems of specialized groups and technical pursuits are secondary.

The choice should not be one of certain sciences as such so much as of certain kinds of problems. For teaching purposes, this reorganization of subject matter must eventually take place. The organization of subject matter for a cultural purpose is strictly the way it shapes itself in good learning, solving bona fide (human) problems. The "sciences" represent finally, not even the solution of teachers' problems, certainly not students' problems, but the solution of the problem of organizing a science.<sup>2</sup>

<sup>1</sup>Dewey, Philosophy of Education, Chapter XIV.

<sup>2</sup>But see Dewey, Philosophy of Education, p.224.



Now it is, nevertheless, true that this very structure of "the sciences" is the process that has made learning method. For the particular purposes of conducting discovery - just what learning must be - the relations called "scientific," as opposed to those which give the common every day experience of things, are the significant relations. The educational problem seems to be, now, so far as the college is concerned, to use the methods of science for the purposes of learning through the real problems of the learner. This is exactly what technology has done and is doing, for its purposes. This is the second great lesson for the cultural college to learn from the technical college. The first was to take itself seriously and dignify its calling by naming and justifying its educational purpose. Technology escaped the implications of tradition. Cultural education may escape by learning the methods of the technical colleges, the methods of science, both organizing and applied. The technical schools are proof of the pedagogical meaning of science, "of the primacy of method in the definition of science." But to apply this principle is for the college to accept the fact that learning is its business, that learning is thinking, that thinking is an organizing process centered upon the intellectual growth of individuals, that its subject matter is individual problem, and that the method of problem is identical whether here or in what we know better as the procedures of what we call "science."

We have realized that completed science is abstract, aloof, an imperfect educational instrument, and we have attained some success in breaking up its crystallized completeness for pedagogical purposes in the lower schools. The need is rather different than





less for the student of the college. By default of effort to do anything for him hitherto, the collegian's need of teaching is great. That need will be more difficult to meet just as it has been more difficult to discern, and more plausibly minimized. It will be no easy matter to apply the teachings of these chapters on method and subject matter to the college, but their pertinence may be none the less emphatic.

The "correlation of subjects" was perhaps an unconscious effort to mend the breach caused by trying to teach separate sciences to children, who were not at all prepared in their experience for science in that way. The attempt of culture to express itself in the form in which science itself developed, i.e., in subjects of study, isolated as scientific study had left them, is so deeply seated as to be perhaps the one gravest difficulty with which method of teaching will ever have to struggle. But to put it off is to dig the rut of habit deeper. The proposal of "courses of instruction" or "courses of study," instead of "subjects of study" shows a glimmer of the solution. The organization of "units of instruction" may point in the same direction.

The organized subject matter of curriculum gives us, not so much the fruitage of teaching experience free to do its own acting and thinking, but rather the scientific experience of the past, not worked over at all into untrammelled teacher-wisdom. We await its pedagogical organization. This will be, not in subjects of study, but in projects and problems.

Eventually we shall not, as now, so completely assess its own values to instructional skill as abstracted from the learning success of students, as to be able to rate it as not itself com-



promised in excellence when learners are failing to learn. Students often rate the attendance upon lectures in a course as so far an incident as not to pretend to meet the teaching effort put forth there. A student reads a newspaper throughout the lectures of a course, does what he understands as "studying" on it, and weeps illogically at the dispensation of fate when he fails to pass the examination.

An immense amount of student-performance is done without even a definite pretense to oneself as student that such performance is a part of one's own effort to learn. The complete explanation has too many facets to be exhibited at once, even if we had enough wisdom to dare think we knew. Much of this is the most laboriously and faithfully done of student-work. Fortunately some of this performance will be illuminated by later experience - which is taking an indefensible pedagogical risk. Elementary physical laboratory work, e.g., often is yielding very little learning, though it may involve experience which one's later experience will organize. This is too much like the argument that boys should fill themselves with the language of Cicero, to assimilate their pocket-fulls of verbiage later when their mental capacity should grow up to the ideas lying latent. We shall have to take pedagogy more seriously than to accept such sophistry, or not complain if our problems as teachers turn out to be chiefly peace-parleys and policing.





## CHAPTER V

### THE INSTITUTION

The philosophy of collegiate education is directly indebted to Dewey<sup>1</sup> for calling attention to the shortcomings of those modern philosophies of education which have both furnished the most effectual insights that have prevailed in such pedagogy as we have, and have, with them, left that pedagogy short, where it followed, instead of doing its own thinking. Whether collegiate pedagogy has taken a cue from them or has been unsuspectingly influenced, it seems to be the college that has most frequently exemplified the two main defects. It has identified "cultural" with "classical," "humanistic" with "linguistic," and kept its future behind it. It has not even agitated itself, as the high school has done to shake off either the false implications of formal discipline or the error in the Herbartian correctives. It sees no imperfection in the implication that the mind is formed by the "presentation of the proper educational materials," that "new presentations are to reinforce groupings previously formed," the past being the determinant of the future, and that "consequently there is a perfectly uniform method in instruction in all subjects for all pupils of all ages." Although Herbart did more than one man's share in relieving of a false psychology and in turning attention to subject matter and away from faculty-training, collegiate pedagogy holds untested doctrine from it-knows-not whither. It is the complacent chief performer in the act of teaching whether there be any learners or not. Least anxious to be considered "pedagogues," the collegiate teachers are the best examples of those who adopt Herbart's

<sup>1</sup>Dewey, Philosophy of Education, Chapter VI. Education as Conservative and Progressive.



"school-master's point of view," as Dewey calls it, the conception that the mind consists of what has been taught, and that the importance of what has been taught consists in its availability for further teaching - what he calls the pedagogue's view of life. Collegiate pedagogy could not make a more wholesome resolution than to study the subordination of teaching to learning.

The primitively fascinating doctrine of recapitulation took a powerful hold on students of pedagogy as they felt the grip of the doctrine of evolution and caught the vision of "actival homologies" to add to the biologist's homologies of structure. That ontogeny recapitulated phylogeny only had to be guessed to be seized upon as scientific fact.<sup>1</sup> It is in keeping with the conservative tendency of higher education, that it should look backward for its cues rather than cultivate the helps to read evolution forward into progress. It's golden age has always been in the dim past.<sup>2</sup> And yet youth is the race's chance to help the individual to short cut the long racial processes and the advanced infancy of college age is the precious opportunity of civilization "to emancipate the young from the need of dwelling in an outgrown past."

The interest the college takes in the historic past is not even so well supported as the biological idea of recapitulation. It is not even reading itself "back into evolution, instead of evolution forward into ourselves." It seems rather a deliberate choice of a static past ideal instead of a dynamic present. The aim of education is clearly to facilitate short-circuited growth according to the principles of conscious modification of evolution long since pointed out by Wallace, John Fiske, and others. "Utilize

<sup>1</sup>Davidson, P.E., The Recapitulation Theory and Human Infancy.

<sup>2</sup>Dewey, New Republic, July, 1916.





the products of past history so far as they are of help for the future."...They are "a part of the present environment of individuals: but there is an enormous difference between availing ourselves of them as present resources and taking them as standards and patterns in their retrospective character."

Not "unfolding," then, nor "recapitulation" yields a technical definition of education, but it is "that reconstruction or reorganization of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience." So it would be a mistake to conclude that the title of this chapter expresses a dualism Dewey has not labored to dissolve. Not unfoldment nor recapitulation, but reconstruction is the solvent by which to conserve in order to progress. Primitive meanings are conserved and meaning increased by experience, and "an educative experience, one in which instruction is conveyed and ability increased, is contradistinguished from a routine activity on the one hand, and a capricious activity on the other." While Dewey's illustrations are most pointedly connected with the abuses of the school experiences of children, his characterization of capricious action has volumes of significance for collegiate criticism. "Individuals act capriciously whenever they act under external dictation or from being told, without having a purpose of their own or seeing the bearing of the deed upon other acts." Now "there is a tendency to seek the cause of such aimless activities in the youth's own disposition isolated from everything else. But in fact such activity is explosive and due to maladjustment in surroundings." If we are looking for the defects in the college chiefly in the perversity of human nature, we need to throw our



emphasis sharply over on the side of the question as to whether the institution has so perfected itself as to be the immaculate accuser. Human nature is neither good nor blamable from a pedagogical point of view, but is what pedagogy has to deal with. Like instincts, which are neither good nor bad, it is the matrix in which worthy results are to be formed.

Who can foresee how completely the ineptitudes of capricious action will dissolve themselves when the college shall become the place of skilful adaptation of the maladjusted surroundings to the one purpose for which it primarily exists? The obligation of the college is peculiar and much greater, in its way, than that of the lower school; not simply to suggest and put learning before students as a thing worth while if they can make themselves believe it, but to frame an environment which includes teachers eager to be subordinated to the success in learning of individual students. Students are not now generously devoted to the task of reorganizing and reconstructing their experience.

There is still room for interpretation of the demand expressed for education by Lester F. Ward,<sup>1</sup> that diffusion of intelligence should occupy a prominent place until humanity was decently possessed of the practical benefits of that science which has been attained by the few. His expression of this demand is clearly in the interest of diffusing among the masses such an increase of the knowledge available as to raise the level of existence for the whole mass of humanity. Different degrees of this demand are expressed in different grades of schooling, and in many types of increased community-

<sup>1</sup>Ward, Lester F., Dynamic Sociology, Vol. II, p. 541.





use of educational facilities as well by adults as by children, also by improvement of social and hygienic conditions in the community. It is represented remarkably in the enormous increase of use of high school privilege and by the increasing generosity of types of high school service. It is specifically and multifariously finding expression in some degree in all forms of education not characterized as professional or research. These latter forms represent that extension of the boundaries of science in which the universities are engaged. More and more the energies of the universities are absorbed, and properly so, in research or vocational training. It is no derogation of the educative character of the universities' work to pronounce an increasing failure to fulfil another function which still too largely depends, nevertheless, upon the universities.

The function which increasingly goes by default is one implied as correlate of the demand for diffusion of intelligence. It is the specific duty to avail humanity of that finer culture which is the most natural fruitage to be expected of flourishing science. It will take conscious effort in a pragmatic age, and it will take a rare kind of professional devotion to compass this supreme contribution of science to the nobler uses of humanity; but there could be no more plausible function for a separate educational institution than to be completely absorbed in the task of devoting science to the education which, as such, should be the highest education we know. This demand has that definiteness, even that specialization, which is the characteristic demand of the times. It is logical part-and-parcel with the demand of democracy for complete opportunity for the individual. Indeed democracy's keenest need of constructive



defense is against that criticism too likely to be justified that democracy tends toward the increase of mediocrity. The completest possible diffusion of intelligence implies no such thing, but the tendency cultivates itself without help. It can only be met by a determined effort to avail humanity of all that humanity is willing to receive. If this issue has any such definition as it seems to show, it is eminently worthy of institutional effort. The round of educational institutions is not complete until a "cultural college" is habilitated upon the issue of giving the best instruction that can be had to those who choose themselves for this specialization by those very processes of proving worthiness and capacity which prevail in all other respectable fields of endeavor. It must be true that part of what now prevents enthusiastic willingness of teachers to train themselves for collegiate service is in the fact that collegiate education exacts nothing but mediocrity in preparation of its students and promises nothing but a byproduct in its training. If worth doing at all collegiate work is worth doing well enough to justify a worthy educational institutional character of its own. Unless it intends this and in a measure attains it, collegiate education may be as little able to make a place for itself as it now seems failing to do. Its pedagogy cannot possibly thrive while it has no clearer definition than, as now, to differentiate no whit the pedagogy of specialized research and the pedagogy of professional training from the pedagogy of a sound liberal culture.

We are not so ill instructed as to the meaning of this culture we crave, as to let it mean a selfish discounting of racial demands. There is no essential difference between the demand for





this specialization of individuals in the interest of the progress of the race and any other worthy choice of individual function and improvement for it. These are not individuals being picked and discarded to polite uselessness. That is but to disallow the conditions in the premises. They are not the persons who choose a period of intensive self-cultivation in lieu of preparation for active life and service, but in addition to their professional preparation. This is their prime credential, that they are worthy of, and choose, that cultivation of themselves which is possible only to persons of ability and patience, and persons who because of these qualities and their cultivation shall render such service as may not be offered by him who neither wants nor can profit by such devoted study.

Adolescence wants extension; the period of educability is too certainly curtailed by those very types of training which most effectively polish off the skill of an early craft or a pseudo-profession. Precocity of training is as truly a cultural, as a physiological, shortening up of the life of the individual. We lament the frivolity of the non-professional student, and crave for him the steadying influence of his more serious training in the professional school; but that is a question of two sides. We have not yet fully tried out the proposal that a like demand of serious attainment, similarly motivated, might be a fair test of his worthiness to be carried over to the professional school. It cannot be done by fiat, of course, but we are nominally, at least, extending for him in his undergraduate days the period of his changeability, his mental growth. That part of his experience which is the ground where reason may ripen up the man. If, being devoted to his "education," it is not used, it is much worse than wasted time. It is time in



which the fibre of his character has been loosened by the persistence of disintegrating habits. He has not simply waited, simply lost time. Education, in its period of plastic experience knows no such alternative. It is not so certain, however, that the man himself has lost irretrievably by the cultivation of lax habits in a critical period, as that by his trifling, the name of collegiate education has been damaged, and the community itself has lost heart, and weakened the faith it thought it had in its cherished higher education. This is a consummation devoutly to be dreaded, and, if possible, prevented.

We hope now to be completely satisfied with the community's ambitious efforts to bring the public schools up abreast of the ever-increasing demand for more good citizens to live the life that practical science has made possible. This ambition does not quarrel with, but emphatically argues, its sequel. Not only are there always too few people trained to live the life which science has made possible, but too few by far are ever being prepared to hold the ideals of living which only an improved higher education can make possible. Only the greatly improved lower schools which we perennially crave and are always improving, can secure the prime desiderandum; but it is equally, and more fatally, true that the seed of a better generation is directly sacrificed to fill the unfertilized kernels of the current crop, if we are in any degree satisfied simply to "live up to our times." The lower school does completer justice to the "average man," but there can be no improvement of the type of intellectual justice humanity shall try to do itself, without that seminary of ideals in which the stock itself must be improved. Not completer, but a higher type of justice is done the average man





by society's furnishing him, not simply the essentials of modern existence, but a chance to choose from a maximal number of possible specialisms. That round of choices is by no means complete unless the institutional opportunity is open to make his own personal culture as serious an object of pursuit as is that of any other calling or training that invites. There will always be a lively demand for persons prepared to hold the ideals materially made possible by general education.

A fallacy easily creeps in to vitiate this suggestion that a liberal, cultural, pursuit is a legitimate educational choice. Its correction is in the text of Dewey's discussion of "Labor and Leisure," and of "Intellectual and Practical Studies." Purify the terms liberal and cultural of the false suppositions of their history, and no incompatibility is left between the finest idea of democracy that can be conceived and the idea of choice; and among choices that of the cultural pursuit by him who is able to engage in it is as necessary as any other choice that can be conceived. To engage in a rational contemplation of all that humanity can conceive of, as "equality," but strengthens the assurance that choices are an essential, and that what we are to expect of humanity must be expected to come through those diversifications of function which involve choices based upon personal likes and individual capacities by whatever means determined.

Any school is a place of selected activities. Ideally these are not isolated from their ordinary practical setting and function. The college is a place of more highly selected activities for more highly specialized purposes. To suppose that such selection and use implies estrangement from their actual meaning is not to condemn



the idea of the college, but simply to suppose incapacity to administer its activities successfully to adapt them to the ideals acknowledged. Intellectual studies exist in isolation only when one insists upon an estrangement from the practical which sound pedagogy nowhere inculcates. It seems to be only in historical exemplifications of unperfected practice that we find objectionable features in "cultural" education. Education must be partly dead at the top until it can heartily devote a part of its effort to breeding intelligent practitioners of its own and civilization's best ideals. How well are we prepared for the doctrines of Dewey? Is it a matter for gratulation or regret that few will be found interested in the problems of education he discloses and fewer will be found able to press them to solution?

It is of especial moment to the college that the dissolution of the dualism between subject matter and method, treated by Dewey in chapters twelve, thirteen, and fourteen, on the nature of method as thinking and its relation to subject matter, and more fully accounted for historically in chapter twenty-one, should be taken to heart in establishing collegiate principles. It is especially in collegiate education that the historical influences upon method still pronounce themselves. Secondary education has the keenest struggle with the language tradition, because its excesses are there less relieved by that strictly liberal purpose we are arguing for the college, and because the language obligation falls more heavily in the period when training in language for those who are to need it should come. The secondary school is seeing some relief from two or three sources (1) the differentiation of curriculums which leaves





much unnecessary language-study out of the curriculums of many,

(2) the offering of foreign language still lower in the schools and

(3) the accompanying improvement in the naturalness of the teaching, easing the task and arguing its earlier introduction. These all tend to liberalize the teaching of literatures in the high school, freeing it from the routine of linguistic drill, and still more, tend to free the college. But the real relief may come only after the tenacious practice of partial methods gives way to a more catholic doctrine of method. An early stage of pedagogical consciousness makes method-consciousness a new menace, replacing the laissez faire of tradition. A method becomes for its partisans the method, and, applied too exclusively in one subject, even over enthusiastically applied where it is less appropriate in many other subjects - method becomes an end in itself exalted above the instrumentality it should serve. So has foreign language teaching had one emphasis after another, each western country looking backward, as each period looks backward, to a foreign and earlier culture, borne by a foreign and earlier perfected language. Behind lies the culture which must be had and language is its vehicle. Scholastic method ensues upon the necessity to transmit the authority which lies in foreign antiquity. But scholastic method perfects itself for other purposes than linguistic instruction, and teaching takes on the permanent habit of transmitting the ipse dixit of other authority than literary and theological, until we take a self-conscious look at our practices, and find, as Dewey shows, that even the teaching of science itself, both confuses itself by accepting a separation of itself from "humanities," and at the same time, accepting the methods that have prevailed, enforces them where least



appropriate. Hyperconscious of a distinction shown not to be vital, that between nature and man, science eschewed the methods of authority for its doctrines and attitude, but preserved and propagated the age-during scholastic methods in its teaching. Hence it is not extreme to find that the college is heir to an improved subject matter, an improved attitude toward authority and nature in its research, and an improved method of "inquiry, discovery and invention" in its own work, to displace there the "defining, expounding, interpreting" method of scholastic science facing backward; while in the methods of its teaching it has, more conservatively, retained these modes of authority. In short we are eagerly turning to "contemporary nature and society" for subject matter, but are too largely still in the unreflective age of either using good methods in wrong places or using method for our teaching which we have discarded in our own thinking. There is a suggestion, too, that if carefully chosen, where authority is really in place, we might at least profit by the accuracy and thoroughness of the scholastic method; that irrational reaction against it will be unprofitable because unreflective. We become convinced that science teaching is being slighted by the researcher, and even turn to the fatal opposite extreme of entrusting its teaching to those who are not scientists.

Then, finally, if not exhaustively, the college is bound to remain, while the influence lasts, the chief sufferer from the special pleading of the propagandist. It can not soon live down the indefensible doctrine of devoting educational institutions to the purposes of narrow special interests like those in which theology has prevailed to cloud the liberality of genuine higher





education. The university itself has either outgrown such narrowing tendencies or never suffered, because of the presumptions of freedom in its European examples. The college has had salutary tradition transmitted to it by its close connection with the university. But it may not for this reason be necessary to keep the college connected with the university. It is true that the high school has also profited by a similar immunity through its complete connection with a jealously guarded public school, and the logic of events will soon make the high schools into colleges where local resources permit. Such high school-colleges will, again, embrace an increasing number of types of curriculum as resources permit and will undoubtedly assimilate each in a measure to the high school as we know it. That public interest will prevail to make it liberal as well as vocational may be taken for granted from the past history of the high school. That it will, for some time to come, divide what is now called collegiate work with the university, is evidence enough, perhaps, that such special efforts may be needed to try out the types of curriculum as that which is advocated here in the case of the "cultural type." It would be no ultimate relinquishment of the need of such exemplification to grant that such a college is essentially "secondary" in its character, that its term might be shortened even in the interest of its own purposes; or that it would be in keeping with the interests of the graduate and professional schools that it should share with them the earlier stages of professional work. Liberal-minded persons with a respectable amount of training for their work are increasingly demanded for the lower schools. The doctrine of excellent preparation for high school teachers prevails, with standards of



requirement advancing. The college is the institution that has the good fortune to get pretty well educated persons in its teaching staff as a matter of course; but though representing the most hopeful place for effective teaching, it stands nevertheless committed to no aggressive policy for their training.

If the question should be raised why collegiate teaching should not be sufficiently improved by supervision and otherwise in the collegiate courses in universities as they are, the case of college teaching seems to exhibit some new phases not yet similarly evinced by normal school teaching. It is not a mere guess that college-university teachers as now employed would stoutly resist that kind of an effort to improve their teaching. It seems more than doubtful whether the introduction of university supervisory officers, even of the greatest tact, could install the presumptions of their welcome authority to improve collegiate teaching. If it is the work of spiritless persons who will only improve if "made to," or of spirited persons who cannot be made to welcome the new venture, the road to genuine success is in either case too far abstracted to be a promising route toward a consummation which must be voluntary.

This is the one most important reason for experimenting with improved collegiate teaching in a separate college organized de novo with separateness as a conditio sine qua non. Clearly it must not be a case of introducing an officer who has the spirit of a spy upon poor service and an authority to improve it or dismiss the teacher. Some things can be done in that way, but not collegiate teaching. The enterprise is worthy, moreover, of a finer type of experiment. The voluntary acceptance of the contract offered by a





college that proposed a coöperative study by its staff of the utmost possibilities of sane pedagogical experiment would constitute the only conceivable working force of such an experiment. This alone is reason enough why the problem of collegiate teaching must be studied under peculiar conditions, and why the collegiate problem demands the organization of a separate college. (p. 221).

The firmest ground for Dewey's enlargement of the claims of the social is secured by an adequate appreciation of the ways, nevertheless, in which the real expansion is made by the individual. The social whole has no meaning worth trying to understand except in terms of attainment which must be expressed by the individual. Movements in the history of thought are skillfully traced to show oscillation from theory of world-mind to extreme philosophic subjectivism, resting finally in the fact that individual mind must be the agency of that significant reorganization of the known, and expansion of its borders called thinking. The static Platonic division of labor which left all thinking to chosen philosophers made even their function less characteristically expansive than conservative of such wisdom as was conceived of as worked out and applicable without prospect of continued disturbance. But the "philosophic subjectivism" of a late stage "misconceived the significance of the practical movement." Not freedom from nature and one another but freedom in nature and society expresses the imperfection of a "thinking" conceived of as estranged from doing. No other conception of the individual frees from dogma and authority. Men have always pursued sound inductive and experimental methods in some of their thinking, but not always in such a way as to prevent



the fatal separation of those practical arts where they did real thinking from their philosophies where they preserved the tenacious errors of past "thinking," isolated to protect them, doubtless from an instinctive feeling that their exposure to "modern methods" would dissipate their authority. Erratic individuals might not be allowed to move with freedom upon the borders of the known, because the known was not conceived of as itself organic, able to engage in assimilative exchange, as it were, with the environing unknown. Yet we have no other way in which to conceive of a freer action at this forbidden zone than in terms of what we call individual free thinking.

In spite of all that must be acknowledged of the reciprocal and even identifying conceptions of society and the individual, one more dualism not only remains undissolved, but gets its meaning in the terms of this very process of individual activity on the borders of the old "known." It is that between thinking itself as a "subjective" fact and knowledge as its "objective and impersonal" product. Knowledge, though in its essence changeable, else thinking could have no meaning, is nevertheless the "context" of thinking. It is not conceived of as having an unchanging nucleus, accommodating itself like a snowball by agglutination as the surface, but changes at its core as individual thinking activity compels. In the days of its being guarded by the jealous conservatism of authority, upheavals shook and loosened it to the core, while the genius who discovered suffered the displeasure of its guardians. Genius is not made by the schools, and even higher educational institutions may not be expected to refrain suddenly from an ambition to foster mediocrity, but schools and colleges are puny aids to such movements





as have shaken the world. A matter of present interest is that the process is now so facile that cataclysm is not necessary; genius will spring up as always, but the process of enlarging the borders over against the house of every man, as it were, becomes a possibility depending upon a fostering of the free spirit of such chosen sons as will specialize for the function of productive thinking. If thinking is an active doing on the borders of the known, it is not so much in our times a doing by the genius, who will do without schooling if necessary, but it is an even, disseminated, balanced, doing-thinking which works with steady certainty over the whole surface of the mass. Not a few geniuses - they will appear without special organized effort on society's part - but our present time seems peculiarly to demand more individuals who doubt without disaster, who through an atmosphere of wholesome, forward-looking uncertainty, are by their training prepared to be the "hunters, inquirers, searchers," dispossessed of the uncritical complacency of completed mastery and possession, capable of the critical activity by which knowledge is revised and extended and convictions set forward to correspond with reorganized knowledge.

The figure of the mass and its change is not to be mistaken here as being altered because new thinking is no longer by convulsion. The self-active individual doer-thinker is not facing outward, oblivious of what is behind him. The mass of the known is not more separated from the active zone of the current thinking, because the whole mass is no longer disrupted with violence. A most characteristic demand upon that kind of thinker, which the collegiate education must produce is the demand upon him for historical perspective. How else are we relieved of the



necessity for volcanic thinking, than by the fact that world-thinking has itself both moderated its contradictory extremes, and leveled itself into a perspective which requires, nevertheless, a mental compass in the individual thinker immeasurably greater than before? Time was when humanity inculcated its narrow round of domestic life and tribal custom even without the specialized mechanism of the lower school. The time has passed when even the man of more than ordinary ability can assemble the apparatus and materials for genuine thinking without the definite aid of the schooling whose real business shall be with productive thinking. He may not be a contributor without society's help to lay hold of the organized known.

The whole attitude of society is now too well instructed, too congenial to the expectation of new ideas, to leave a possibility of the convulsions that broke the crust of an earlier stage of world-thinking: but this in no wise increases the possibility that thinking will do itself or that society will do it. If we were not already aware of it, Dewey has made it very plain that individuals must as surely still be depended upon to bring forward the new idea, as that the new idea as surely springs forth from the old, and does not arise unaccountably in place of the old. It would be easy to be unsoundly extreme in stating the proposal for a college which is, indeed, invoked because there seems need of the innovation it proposes. It may be merely hinted here, what will demand fuller treatment elsewhere, that although the identity of subject matter and method must be accomplished in the interest of both, it still remains true that the conservative element is what we call subject matter while the dynamic element is method. Subject





matter remains as a tangible product of thinking done, though as such we call it the known, the cumulus of process, "knowledge" rather than subject matter, which term we use of it while it is coupled in the learning process with thinking; calling it knowledge to denote the passage of action on beyond it. Yet it is not so much a change in subject matter, nor even in its ultimate organization, which will characterize pedagogical process as a change in method where change is in the nature of the case implied. It will be proposed that subject matter of instruction in any school is bound to be sciences as we have them, both for intrinsic and for practical reasons. Intrinsically because science is the product of thinking done and, such as it is, is what we have always to work with and forward from; practically, for the college's sake, at least for the present, because the sciences must be taught by persons trained in them and not by amateurs. But method may itself be but another name for our appreciation of the pedagogical possibilities of sciences (I use the word sciences for "subjects of study" as we know them, as remonstrance against the supposition that only certain subjects of study are really "sciences," hence really legitimate objects of study ). It is in method, then, that constructive attempt is to be made.

It will be a matter of some interest as we proceed to see whether the college shall prove to have a different relation to specialism from that borne by the professional school, where the speciality comes finally to be a specialized performance based upon previous study of specialized knowledge, both of which types may in their turn or simultaneously afford themselves as assets of professional pedagogy. If specialization is an essential of the in-



dividual's education, it will be a matter of much moment to be assured of the form it may take in collegiate education. It may prove to test severely the adaptability of him who too easily assumes that his specialty as teacher or even his specialty as a learner may serve finally without modification to serve him in the teaching also. It will prove a severe test of such complacency to have it proposed that the type of specialism which is to serve another learner must, in its turn, be that learner's specialty. In short, to forecast the ultimate demand for integration of collegiate teaching in terms of the individual and his requirements, no other case of integration need be expected than the individual learner himself in some form or other. Adopted, even arbitrarily, as hypothesis of integration, the doctrine of individual student as center of collegiate pedagogy appeals with great plausibility.

Much of Dewey's argument in chapter twenty-two is to assure the complete reciprocation of individuality and sociality as necessary to each other in conceiving the nature of the elementary school. Much that is needed here is granted for the college without argument, yet much of it is accepted philosophy instead of actual practice. It is even humiliating to admit that certain truistic phases of his doctrine discover abuse of fundamentals in college much more inexcusable than in lower schools. "Freedom means essentially the part played by thinking - which is personal - in learning: - it means intellectual initiative, independence in observation, judicious invention, foresight of consequences, and ingenuity of adaptation to them." How much freedom is the college capable of? How much does it have? To what extent does the idea of freedom come in off from the playground and functionate where free-





dom is really pertinent to the acknowledged purposes of college?

"Individuality as a factor to be respected in education has a double meaning. In the first place one is mentally an individual only as he has his own purpose and problem and does his own thinking. The phrase 'think for one's self' is a pleonasm. Unless one does it for one's self, it isn't thinking. Only by a pupil's own observations, reflections, framing and testing of suggestions can what he already knows be amplified and rectified. Thinking is as much an individual matter as is the digestion of food." We all know how little originality is cultivated; we are even aware of the sophistry by which the desirability of originality is disallowed. We are not always so clearly aware that the impossibility of 'originality of product' by no means implies lack of 'originality of attitude'. My discovery of an old truth need be no less mine because the means at my disposal are immeasurably greater than those of the original discoverer. And yet often 'heuristic method' means the farce of forcing through the outgrown steps of procedure, instead of securing the priceless attitude of inquiry which subordinates details of procedure. The method of the original discoverer may also profitably become my problem, but it may have no rational pertinence as my method of copying his solution.

At the center of the whole problem of pedagogy is a statement made in this connection. "In the normal process of becoming acquainted with subject matter already known to others, even young pupils react in unexpected ways. There is something fresh, something not capable of being fully anticipated by even the most experienced teacher, in the ways they go at the topic and in the particular ways in which things strike them. Too often all this



is brushed aside as irrelevant: pupils are deliberately held to rehearsing material in the exact form in which the older person conceived it. The result is that what is instinctively original in individuality, that which marks off one from another, goes unused and undirected. Teaching then ceases to be an educative process for the teacher. At most he learns simply to improve his existing technique; he does not yet need points of view: he fails to experience any intellectual companionship." This seems to point to what might be called the first law of economy of pedagogy. Is it soundly observed in collegiate practice? Following this is the paragraph in Dewey's philosophy which I have already referred to as the genetic charter of collegiate institution. It must be borne in mind that we are seeking to state the application to collegiate education of the doctrines Dewey applies in elementary schooling. The inseparableness of initiative doing from initiative thinking has been his theme.

"As maturity increases and as the student has a greater background of familiarity upon which a new topic is projected the scope of more or less random physical experimentation is reduced. Activity is defined or specialized in certain channels. To the eyes of others, the student may be in a position of complete physical quietude, because his energies are confined to nerve channels and to the connected apparatus of the eyes and vocal organs. But because this attitude is evidence of intense mental concentration on the part of the trained person, it does not follow that it should be set up as a model for students who still have to find their intellectual way about. And even with the adult it does not cover the whole circuit of mental energy. It marks an intermediate





period, capable of being lengthened with increased mastery of a subject, but always coming between an earlier period of more general and conspicuous organic action and a later time of putting to use what has been apprehended.

"Where, however, education takes cognizance of the union of mind and body in acquiring knowledge, we are not obliged to insist upon the need of obvious, or external freedom. It is enough to identify the freedom which is involved in teaching and studying with the thinking by which what a person already knows and believes is enlarged and refined. If attention is centered upon the conditions that have to be met in order to secure a situation favorable to effective thinking, freedom will take care of itself. The individual who has a question which being really a question to him instigates his curiosity, which feeds his eagerness for information that will help him cope with it, and who has at hand an equipment which will permit these interests to take effect, is intellectually free. Whatever initiative and imaginative vision he possesses will be called into play and control his impulses and habits. His own purposes will direct his actions. Otherwise his seeming attention, his docility, his memorizings and reproductions will partake of intellectual servility...."

If one of these paragraphs is the charter of collegiate education, the other, on this assumption, serves a purpose of ours, to indicate the basis of choice of collegians, even better than the author's purpose, which is to indicate how essential is such intellectual freedom to democratic society. The college we conceive is an essential epitome of democratic society evincing its finest ideals. In so far our purposes are identical; but in so far



as the "charter paragraph" contemplates an actual institution cultivating the conditions under which this "intermediate stage" of thinking may be fostered, it demands a severe selection of its candidates. Its use as a sifting organ agrees with what we have said <sup>of</sup> before the nature of preparation. A necessary implication of collegiate life and work must be freedom. It can scarcely be in the nature of its charter business that the college should both do its actual work and engage de novo in preparing persons to practice the freedom its work necessitates. No more fatal delusion prevails in collegiate practice than that which either expects a cursory test of more or less irrelevance to establish fitness for freedom, or, with greater inconsequence, expects the college life itself to test that fitness. This one preposterous uneconomy, if not the result of too faithful patching up of old utilities would be chargeable with insincerity. It may not be mended until the "rules of admission" have some actual policy in the college by which to correct themselves. If secondary schools knew what timber colleges must have, they could at least select if not prepare it, and if they could select it the colleges could even better afford to do part of the preparing of selected timber than waste good energy in testing and discarding timber which would never have been offered, if the college's demands had been rational and clearly understood. The college can only succeed with persons who are able to live in the "intermediate stage." From the very fact that the secondary school itself forms part of that intermediate stage there is no excuse for passing on to a real college more than the mistaken fraction of one percent of those whose destiny is to slight the self-directive requirements of the intermediate stage.





If Dewey's philosophy of the individual has force in those stages of his development in which the immediate tribal claims are strong and unmediated, by every token of its claim, its applicability, to the stage where the efficacy of individual thinking is the price of the race's progress, is immeasurable.



## PART II

## PROJECT AS METHOD OF COLLEGIATE LEARNING

## CHAPTER VI

## INDIVIDUAL PROJECT: THE METHOD OF THE COLLEGIATE STUDENT'S WORK

Although we use the word 'project' for a concept which it will require our treatment to define, there is, nevertheless, the more reason for a tentative definition at the outset as hypothesis. We expect project to be that sort of active effort to learn which fulfills the conditions of problem.

The use we shall make of the term project serves to distinguish a type. It will figure in our final proposal for the integration of the particular type of college we have in mind, and will recur in our treatment of the educative coherency of project (p. 188). It is necessary here to distinguish three types of project. In the high school, and characteristic of the lower school throughout, should be placed the social project. The high school where the extreme egoism of childhood, and even the predatory associations of the gang instinct are being supplanted by the appearance of the genuinely social, altruistic, humane, instincts of adolescence, the social project is now finding a diversity of application. Some of the most telling suggestions for improvement of secondary pedagogy are found in what is called the socialized class exercise<sup>1</sup>. There is no occasion for ruling out the principles which here improve high school practice from acceptance as equally promising suggestions for collegiate practice. Nor, is there anything in the individual project to be proposed here for collegiate use which makes it foreign to

<sup>1</sup>See Johnston, and Others. The Modern High School, Chapter IX.





the best purposes of the high school. The distinction is rather in the imperativeness of the demand that the college shall attend to a need to which the individual project is believed to make direct answer.

A distinction of real educative vitality, however, has to be made between even the initial motives of project in the junior and senior colleges respectively. A distinction and an identity must be noted. The project of the university student is, if possible, even more emphatically individual than the project here to be treated as collegiate. It is so characteristically individual that it eventually may entirely supplant work in course, and become the sole occupation of the student. In this respect it marks the limit of the tendency toward individualization of study as one progresses into one's highest and best student-work. Every best feature of such senior collegiate student's work may remain exemplary for the collegiate student without interfering with the important distinction in purpose which has to be made. The university individual project is by definition, specialized research. As such it is not essentially an educative enterprise, though if it fail to be educative for the individual, it will be by inexcusable default of a golden opportunity to have the very best of educative experiences. On the side of the results immediately aimed at, it must reflect training before it can exhibit it, for it rather requires training than promises it. As it tends toward the limit of its ideal of specialization, it may recede from the obligation to expand the cultural outlook of the researcher who pursues the narrowed problem. The cultural result will come, as all cultural result comes, by virtue of the teacher's capacity to restrain from the



tendency a problem often has to exact a clerical rather than a cultural experience. This is no derogation of the type, but marks a distinction which must characterize the third type of project.

At large throughout this paper the theme of our treatment is intended to characterize the method of the student of the junior college as the method of individual project. The single sufficient differentia to insist upon in any effort at definition is that such project has one supreme purpose, the cultivation of the individual.

It is desirable that our present treatment shall be in all respects regarded as fundamental though it takes an executive attitude toward project, which involves the statement of some precepts. But the rules for effective studying, for an example of application, so far as they are rules for right thinking, are rules under the head of 'project'; and it is the aim of the present study to avoid, if possible, confusion of its corollaries with the main proposition. If our statement of project as the way problem is worked out is right, it cannot fail to take account in general, of such rules for study, or research, or experiment, as are dependent upon the laws of thinking. Where 'project' does not apply, it quarrels with no other mode.

Similarly if a question were raised as to whether we had done violence to the issue of university research in setting off so emphatically the collegiate function, it ought to be noticed that solicitude is sometimes expressed lest research itself may languish in this country for the want of trained researchers. There is even room for the criticism that this most important function of pure research sometimes recruits, rather than trains, its performers; while there is at best the collegiate training we criticize as the





recruiting ground. A favorite criticism of collegiate procedure, such as we here distinctly participate in, is the criticism that it too definitely shapes its scientific training to the supposed technical needs of future researchers. If this were duly successful in its preparatory purpose the strictures would be unnecessary. But the trouble lies in the fact that, with an eye too singly upon the end, the means have been regulated by no adaptation of pedagogical means to that end. Whether we shall train, as well as recruit, researchers, depends upon whether we shall apply principles of pedagogy applicable to real collegiate needs.

We propose, then, to appeal to psychology, not for a complete exposition of thinking, but for such aspects of that problem as a whole as throw light upon ours — the psychology of thinking as represented in problem and project, with especial emphasis upon the executive aspects of the collegiate student's thinking. The active character of problem, as it begins at once to reveal itself, both justifies this study of the executive in general, and, in particular, carries an injunction in the very meaning of the word 'problem'. The necessity for persistence and continuity raises at once the practical question, how can the psychology of thinking exhibit the essential means of sticking to the purpose which starts the thinking? This is clearly the main issue. It presents the usual three-fold aspects of psychological questions. Studies in the psychology of thinking have already collected and expounded such resources of the pedagogist. They furnish a terminology and almost a technique. If 'project' proves to be an inadequate expression of their implications of collegiate pedagogy, it is only the pedagogist's fault. But the application to our purposes is the



statement of the psychology of problem in terms of the pedagogy of project. This, when fully applied, as it is not necessary for our purposes to do, would sift the materials the student uses as to their susceptibility to pedagogical treatment, would regulate the way he uses such materials, especially the way in which he faces them at the outset, and in the third place, would canvass the distribution of materials.

There are clearly, however, the three ways in which psychology must show how to hold to the issues of a problem until it is solved. There are consequently the three headings under which the terms in which it expounds the persistence and solution of problem may be made to classify the precepts of project. The intellectual, the affective and the more strictly executive, may be stated in terms of 'context', 'cycle' and 'activity attitude'. As the psychologist himself puts our problem when it is stated to him in pedagogical terms, it is a problem involving three psychological aspects, (1) that of 'cortical set', (2) of 'determining tendencies', and (3) of 'associative tendencies'. If these terms are made objectively intelligible, they will cover our case.

The comparison here insisted upon between collegiate and university modes of procedure demands a moment's consideration of the terms 'specialization' and 'research', often uttered as synonymous. When we warn against premature specialization we seem often to be setting like restrictions upon "the method of research." If our philosophy is half-right, there is no other method of thinking, hence no field where 'research' is not a name for at least the fact-gathering aspect of thinking activity. There is a widespread conviction among those who are solicitous for the college's





future that this false distinction has been overdrawn, to the detriment of the undergraduate. With specialization forbidden, serious research seems therefore to have to be deferred. A thoughtful assumption of the college's obligation to cultivate research as its vital method is beginning to be made. Research, as a collegiate method<sup>1</sup> can scarcely be saved from diffuseness unless made coherent by some principle applicable on the side of student-attack. Research was the method by which the teacher gathered his materials of instruction, but it has nothing immediately to do with a didactic task. The student will be a researcher as surely as he is 'student!', that is, something more than a note-taking auditor in a didactic performance.

It is worth noting that the collegiate teacher's research in preparation for collegiate teaching, while built upon specialized research, to give him original mastery in his subject, is not, per se, as immediate preparation for this particular teaching, what might be called specialized research. To deal with collegiate problem from the side of either teacher or student is not primarily to deal with a problem of specialized research. So far the teacher's procedure corresponds to the student's. Where teacher and student differ utterly in point of view, is in the important fact that one generalizes here after specialization, while the other pursues such generalized research as must precede in his student-experience the specialized research to which he may later aspire. It is inconceivable, however, that he should be making sound preparation for

<sup>1</sup>See Ruckmich, C.A., A Scheme of Method, Psychological Review, XXI, No. 6. November 1914, p. 398, for use of terms, 'method', etc. These terms need distinction in pedagogy, as well as in psychology. I am using 'Method' for the larger rubrics of procedure.



specialized research in a field without previous pursuit of general research in the same field. The necessity for 'context' in which thinking may go forward forbids. One must proceed to specialized study through gradually increasing the specialization of his general study. Undergraduate project is thought of as satisfying this requirement. It intensifies the individual's study of a field called a 'subject of study' or 'a science'. But the process of intensification is a process of 'correlating'. Intensification clears the individual's path and trims its borders, while 'correlation' keeps its connections open. The project means both of these, and saves from the deviousness which sees a net-work of paths but no arrows of direction through, and no signs at the junctions. Discovery which is genuine, development actually made by the learner, and testing, all necessary to thinking, can come only through actually building up some general experience in a field.

The order of excellence of a teacher's participation in the process does not begin with his own fully specialized knowledge in a field. Rather his qualification is in his capacity to follow with active comprehension the entrance of the learner into the field: the degree and type of his ignorance, the probable images he has to work with, his materials for thinking in this field, his lack of materials essential to a beginning - how to get them into significant suggestions of hypotheses for the first thinking, how to get the suggestions which will stimulate this learner to make a beginning of thinking in this field.<sup>1</sup> Critical testing of the capacity of an individual to engage now or later in specialization of study is a

<sup>1</sup> For something of the guiding power required here of teachers as well as something of the test of power in students see Dewey, Philosophy of Education, p.84.





duty of the collegiate teacher, just as it was incumbent upon the high school teacher to help individuals choose their collegiate type of work - or to choose against collegiate work. Has the person patience? capacity for suspended judgment? a liking for inquiry? willingness to return upon and live in the facts where successful thinking is bound to require it? None of these powers in a teacher is necessarily implied in his own credentials of scholarship.



## CHAPTER VII

## THE PSYCHOLOGY OF PURPOSE OR PROBLEM

The prevalence of purpose in adult thought is strongly marked in the psychologist's account of the nature of thought. To introduce his own definition Titchener quotes Hobbes for an early appreciation of the difference between random and intentional thinking. "The train of thoughts or mental discourse is of two sorts. The first is unguided, without design and inconstant; in which case the thoughts are said to wander, and seem impertinent one to another, as in a dream. The second is more constant; as being regulated by some desire and design: and because the end by the greatness of the impression, comes often to mind, in case our thoughts begin to wander, they are quickly again reduced 'into the way'." Hobbes is here distinguishing, as far as unaided observation allows him, between the mental connections that reflect a random play of the associative tendencies, and those whose course is directed by some determining tendency. The former, to be sure, are never wholly random; ideas are grouped together by the situation in which they appear;...There is, nevertheless, a marked difference between the two kinds of 'mental discourse', between (say) the casual flow of conversation and the working out of an argument; and it is the second kind, the progressive movement of ideas toward an end, that modern psychology has technically named thought."<sup>1</sup>

As to the possibility of an ultimate explanation of purpose Titchener says, after enumerating the many native tendencies in

<sup>1</sup> Titchener, E.B., A Beginner's Psychology, p.261. See also Dewey, J., How We Think. First pages.





music. "These things, however, are not enough [to explain perception]. For behind all music lies what we may call an intent to express, as behind all speech lies an intent to communicate; and this intent baffles us; we can only say once again, that it is carried by some native and ingrained disposition of the nervous system."<sup>1</sup>

An appeal to the phenomena of attention, finds among the subjective conditions of attention, "a factor that is variously designated the intention, the purpose, or the question in mind at the moment. When one has the intention of seeing a particular thing, that thing will come to consciousness....In daily life this purpose is the determining factor in all observation. One sees or hears only what one desires to hear, or what harmonizes with the intention.... Some objects that have been under one's eyes for years may never have been noticed unless some purpose made it desirable....This purpose or mental attitude may be aroused either from without or from within....From within, the purpose usually arises by a suggestion from something that has been seen....Observation is most frequently the result of a series of problems self-set for solution. Without the problem, observation is indiscriminate and relatively unprofitable. In this sense thought usually precedes observation, but the thought itself grows out of preceding observation and so both are to be regarded as parts of a continuous progression in which each thought suggests attention, and the result of each attention, a new thought, in a succession broken finally by the interruption of an intense stimulus or the necessities of the daily life,

<sup>1</sup>Titchener, E.B., A Beginner's Psychology, p.135.



and this in turn starts a new series of questions."<sup>1</sup>

Associations are, of course, controlled by conditions of attention, probably by strong feeling also, but, "by far the most important of these subjective conditions of attention is to be found in the mental attitude of the moment, the purpose or problem that is set the individual."<sup>2</sup>

We shall have occasion to take note of important differences between the psychologist's and the logician's view of thinking, assumed now to be the purpose of collegiate thinking, (p.80) but from every point of view the conditio sine qua non of thinking is problem. Unless we want to be so nice about it as to make distinctions of no particular use, problem and purpose mean the same thing for us. Strictly speaking a purpose involves problem though problem is no problem except as we have a purpose to solve it. At any rate the psychologist is likely to use the words interchangeably, and it is his help we seek first. The very definition of reasoning as "the application of knowledge in a new way" implies either the particular problem of avoiding a difficulty in accomplishing some task or the abstract problem of reaching some conclusion about the nature of the universe.

It does not differ, in laws of association involved, from memory and imagination, which it closely resembles on the cognitive side; nor from habit and instinct upon which a muscular result follows, as upon thinking. But the characteristic thing about reasoning is "the way the material is applied and the resulting attitude toward the construction - the attitude of belief or of

<sup>1</sup> Pillsbury, W.B., Fundamentals of Psychology, p.253-4.

<sup>2</sup> Ibid, p.261.





doubt."<sup>1</sup> Though reasoning is like imagination in that both are new combinations of old material, it is more like memory in that both in memory and reasoning, these results are believed to hold of reality. This attitude of belief or doubt, as the case may be, identifies itself with the problematical attitude, and is apparent in all the four phases of the process of reasoning. (1) a felt need, (2) the setting, mutually dependent upon the purpose, (3) the suggested solution (following inevitably when a purpose and situation are given), and finally that phase of thinking with which logic interests itself (4) the testing of solution which brings the result of thinking.<sup>2</sup> These four are always present though they may be disguised. (1) The controlling purpose often seems to be no part of the reasoning process and one is in fact seldom aware of it. But failure to take the influence of the dominant purpose of the moment into account is responsible for many misconceptions of the process....Purpose is represented in the systems of Herbart, Stout and Wundt by 'apperception'.<sup>3</sup> In the writings of many it appears as attention or as the controlling factor of attention called "attitude" or "cortical set." Whatever called, it is the determining factor in practically all the concrete mental operations. It gives form to the different percepts, gives direction to association, decides between the different memories that are competing for recall, and it rules action. (2) "The appreciation of the situation" is approximately identified with attention and perception." It is this part of an act of thinking which represents in psychology about what "judgment" may be made to cover in logic - an

<sup>1</sup> Pillsbury, The Psychology of Reasoning, p.2.

<sup>2</sup> Ibid, p.4.

<sup>3</sup> See Bagley, W.C., Apperception of the Spoken Sentence, p.24.



interpretation of the situation. (3) Logic's 'inference' corresponds to psychology's "overcoming of the appreciated difficulty" or making any needed improvement in the appreciated situation - association, in thinking, (or habit, if the fulfillment be an action). This singleness, not to say simplicity, of the act as psychology views it, compared with the laborious complexity which logic involves in its problem of proof, rather than of thinking, well illustrates the difference between these sciences as we need to note it in another connection (p. 177). But the most characteristic expression of the fact of problem in an act of thinking is (4) belief. Belief is the one of these phases of thinking which is in some degree peculiar to thinking or reasoning. (Inference, as logic has it, covers solution, belief and proof).<sup>1</sup> Pillsbury's second chapter discusses belief, which is the end of the process, and still better shows the inevitability of problem, difficulty, something to be solved. But better illustration still of the reality of problem as constituting the case of thinking is the fact that belief itself may, and in those not yet real thinkers, does, come so easily and without the hesitation of difficulty that belief itself is not the real thing but doubt. "Credulity is natural, doubt comes only at a relatively late stage in intellectual development. Doubt, not belief, needs discussion" says Bain. "There is no moment when a thing is neither believed nor disbelieved," is quoted from Brentano. There is no moment of suspended judgment. On entrance it is (1) a thing believed or (2) disbelieved or (3) doubted.... "Doubt arises when a statement can be brought into two or more contexts and changes as the context changes...re-

<sup>1</sup>Pillsbury, The Psychology of Reasoning, Chapter I.





sults from viewing a statement from different points of view."<sup>1</sup>

A doubt, then, is something very real and none the less so is that active process of raising doubts, weighing them in the different contexts which bring them, and dissipating them by bringing past experience to bear upon them. "Doubt is due to the alternating dominance of systems of experience that have not been altogether coördinated one with another....In some matters and at some moments one context and one alone is present. That constitutes or characterizes the momentarily settled conviction. In other matters several systems or contexts conflict and no single organization can be made to include them all....Growth in knowledge is invariably accompanied by corresponding change in belief."<sup>1</sup> It is clear that the thing which creates problem is the effective determining tendency which works when equilibrium of conflicting contexts has to be established.

Reasoning is profitably compared with imagination, especially when we are engaged with this purposeful aspect of reasoning. "Reasoning in its wider applications covers all the rational constructive processes."<sup>2</sup> Memory produces the old, but rational thinking and imagination produce the new, at least in the sense of new connection. "...And experiment shows that an idea comes to us as imagined only if it comes as unfamiliar, with the feeling of novelty and strangeness upon it....An <sup>idea</sup>...becomes or is made into an idea of imagination by its mental setting, which is this feeling of strangeness, the opposite of the feeling of familiarity....Unlike memory, too, "the idea of imagination ...cannot be replaced by another mode

<sup>1</sup>Pillsbury, Op.Cit. Chapter II.

<sup>2</sup>Pillsbury, Fundamentals of Psychology, p.387.



of imagery....It must not simply mean something new, it must be something new....The memory idea", moreover, "is common to all minds; it persists as meaning, under the limitations of imaginal type and the general laws of associative tendency. The idea of imagination seems to depend rather upon special endowment; it persists in kind, also under the limitations of imaginal type; and it is conserved by some special grouping or 'convergence' of associative tendencies. We do not hesitate to describe a man as 'wholly lacking' in imagination; though we should look upon a total lack of memory as a sign of mental incompetence...." Of course the results of thinking are unlike those of imagination and like those of memory in being believed.<sup>1</sup>

The self-feeling found by warren (to be cited a little later) to be characteristic of purposive thinking belongs also to imaginative thinking. Spoken of as seemingly incompatible with the feeling of strangeness, the 'feeling' of our own concernment is nevertheless characteristic of the imagined situation. "The tendency to feel oneself into a situation is called empathy;...and empathic ideas are the converse of perceptions: their core is imaginal and their context is made up of sensations, the kinaesthetic and organic sensations that carry the empathic meaning. Like the feeling of strangeness, they are characteristic of [receptive] imagination" which takes place in primary passive attention. "In memory their place is taken by the imitative experiences, which repeat over again certain phases of the original situation."<sup>2</sup>

But constructive imagination, which takes place in secondary

<sup>1</sup>Titchener, E.B., A Beginner's Psychology, pp.195-7.

<sup>2</sup>Titchener, Loc.cit.





attention is still more in point as exhibiting phenomena like those of constructive thinking. "...In general...there is more hard work and less inspiration than is usually supposed. The poet or the inventor starts out with a more or less definite plan or aim or ambition; the plan persists, if only as a nervous disposition, to determine the course of his ideas. It also helps to initiate the imaginative complex, the first clue to which seems in fact, to come, at least ordinarily, as an inspiration, a happy thought; some external situation or some grouping of the associative tendencies that is active at the moment, touches off the disposition, and the initial idea flashes into mind. Whether this first idea is crude or complete and whether the stream of later ideas is broad or narrow, these things depend altogether upon circumstances. Now, at any rate, begins the stage of skilled labor; the idea is worked upon and worked over; the plan decides what shall be accepted, what rejected, what put aside for another trial; we are reminded of the course of recollection, - only that rejection, active as it is in memory, is still more to the fore in imagination, and construction is more critical than re-construction. Here and there other happy thoughts may crop up; but in essentials this stage of hard work continues, until the idea attains its final expression in objective terms, in the words of the poem, for instance, or in the effective machine. Meantime there have been all sorts of feelings. The imaginative ideas bring with them their own feelings of strangeness; but this may be overwhelmed by the joy of success or the irritation of failure; and these feelings may themselves alternate, swinging from extreme to extreme. Meantime, also, there have been all sorts of empathic experiences, which have formed about the



focal processes, vivifying and personalizing the partial products of the constructive effort; and they too find their natural term in the actual accomplishment of the imaginative task....

"...Imagination" unlike memory "is a more or less steady flow, in a single direction, from the fountainhead of disposition; there are no limits of any kind, save those of individual capacity and experience; but the course is determined by the initial plan or ambition."<sup>1</sup>

This rather full quotation of Titchener's account of "the pattern of imagination," for which the author does not claim literal accuracy, but which he believes to be "in broad outline and on the average...true to the psychological facts" has been made here because of its suggestion of the "pattern of thought" with which it must be put in close comparison. First, however, the author's summary of his own comparison of imagination and memory may well be given, to be kept in mind as he further compares imagination and thought: "Memory is discursive movement within fixed boundaries: imagination is progressive movement from a common source. Memory is characterized by the feeling of familiarity and by imitative kinaesthesia; imagination by the feeling of strangeness and empathy."

"There is a broad general resemblance between the pattern of thought and that of constructive imagination; it has indeed been said, though with exaggeration, that thought is an imagining in words, and imagination a thinking in images. The thinker, like the artist sets out with a plan or design, and aims at a goal; and thought like imagination is a more or less steady flow, in a single

<sup>1</sup>Titchener, A Beginner's Psychology, pp.197-200.





direction from the fountain-head of nervous disposition. 'Happy thoughts' occur in thinking, as they occur in imagination; there is a like movement between the poles of feeling; and the empathic experiences of the artist are paralleled by the mental attitudes of the thinker...."

We have probably done well to get Titchener's pattern of constructive imagination pretty fully into account for exemplification of purpose. In fact the constructively imaginative is largely indistinguishable from constructive thinking. The fact that the end of imagination is to construct a so-called 'figment' instead of a so-called 'reality' is a less important distinction on the activital side than is the activital identity of the process by which the plan works itself out. Here the distinctions become logical rather than psychological, and lose their force because we are not concerned with the ends of purpose, since logic concerns itself always with proof, the validity of thinking rather than the process of thinking. This tendency vitiates Titchener's further account of the pattern of thinking, turning to the tendency to objectify as characteristic of thinking, really not more present in thinking than in imagining, though in one case we say the resulting object is real and in the other that it is not real. Equally futile, and even more a surrender of psychology to logic is his finding one of the two distinguishing characteristics of thinking, the "tendency to dual division." The judgment as "answer to a question" is sheer logic, not psychology, and we are not helped in our description of thinking to sell out the primitive process of thinking to the sophistication of logic, which must conceive its thinking, of course, to be crystallized in language. Language knows no thinking short of



the proposition, which is the formal sign of a judgment. There can be no doubt of the tendency to dual division, but that is not a primitive tendency of the thinker, whose thinking Titchener shows to be independent of language, but is the least cumbersome unit language can show. Language can scarcely be conceived of as starting its mechanism of expression without predication. Thinking is tied to a slow vehicle indeed if it can not take place without introducing the dual form of "judgment" as its characteristic pace. Reasoning does depend, for its logical description, upon the duality of form which crystallizes judgments into propositions, but psychologically there seems no better reason for finding judgment intrinsically characterized by duality than to say that wood is characterized by duality because sticks of wood must have two ends.

It is worth our while to get a little more complete notion of the psychology of purpose since purpose is the concept which is at the center of our present interest. Purpose initiates and regulates acts of constructive imagination and constructive thinking. How is purpose itself best expressed psychologically? Nothing could be more abjectly a defeat of our search for it than to rest satisfied with 'purpose' as a new name for old mysteries. Psychology has lately been especially active in trying to state what purpose or problem means to the psychologist. "Most, if not all, reasoning is concerned with problem-solving; reasoning proper is restricted to solving problems in thought alone, although the problem once solved may and usually does prepare for real construction. The results attained in thought lead directly to and control action.... Problems of mere understanding of the world, and those which go beyond in preparing the way for action...are solved in the same





1  
way.

"Most of reasoning consists in bringing order into experience and in justifying suggestions for new advances....Reasoning as a whole must have a positive stimulus. The problem is always forced upon the individual by some inadequacy of old habits or of old thoughts, by something that goes wrong in the ordinary routine. Where habit and routine suffice, one never reasons. Necessity is the mother of all thought as of all invention. The problem usually presents itself by the man's being thwarted in his mental or physical progress. On the mental side some fact presents itself that will not fit into the theories already developed."<sup>2</sup>

A very primitive expression of the animal's situation in his environment is in terms of the difficulty which makes 'problem'. "There is for the organism a certain condition in which its ordinary structural activities go equably forward. Any disturbance of their equilibrium is a stimulus to reactions which continue until the equilibrium is restored....In higher stages we recognize this condition without ambiguity as one of effort....The action tending to remove the trouble is chosen out of many possibilities, and if it does not succeed the animal persists till relief is obtained....Equilibrium gained, the 'efforts' cease....Here we have actions directed to a certain result and something maintaining them as being so directed. This we shall see is at least the germ of effort and purpose." The characteristic movements of paramecium which has entered a noxious area of its environment is the illustration used.<sup>3</sup>

<sup>1</sup>Pillsbury, W.B., Fundamentals of Psychology, pp. 387-8.

<sup>2</sup>Op.Cit.

<sup>3</sup>Hobhouse, L.T., Development and Purpose, p. 51.



This essential feature of difficulty as the starting point of thinking needs emphasis. In his Introduction to a new edition of Essays in Experimental Logic, Professor Dewey still further enforces this feature as he has stated it in How We Think. "It was the purpose of the essays to point out that reflection, (and hence knowledge having logical properties) arises because of the appearance of incompatible factors within the empirical situation...;

incompatible not in a mere structural or static sense, but in an active and progressive sense. Then opposed responses are provoked which cannot be taken simultaneously in overt action, and which accordingly can be dealt with, whether simultaneously or successively, only after they have been brought into a plan of organized action by means of analytic resolution and synthetic imaginative conspectus; in short by means of being taken cognizance of. In other words, reflection appears as the dominant trait of a situation when there is something seriously the matter, some trouble, due to active discordance, dissentiency, conflict among the factors of a prior non-intellectual experience; when...a situation becomes tensional.

"Given such a situation, it is obvious that the meaning of the situation as a whole is uncertain. Through calling out two opposed modes of behavior, it presents itself as meaning two incompatible things. The only way out is through careful inspection of the situation, involving resolution into elements, and going out beyond what is found upon such inspection to be given, to something else to get a leverage for understanding it. That is we have (a) to locate the difficulty and (b) to devise a method of coping with it. Any such way of looking at thinking demands moreover





that the difficulty be located in the situation in question (very literally in question). Knowing always has a particular purpose, and its solution must be a function of its conditions in connection with additional ones which are brought to bear. Every reflective knowledge, in other words, has a special task which is set by a concrete and empirical situation, so that it can perform that task only by detecting and remaining faithful to the conditions in the situation in which the difficulty arises, while its purpose is a reorganization of its factors in order to get unity."<sup>1</sup>

"...Thinking would not exist, and hence knowledge would not be found, in a world which presented no troubles...; a reflective method is the only sure way of dealing with these troubles." This doctrine of conflict as at the bottom of all thinking is widely illustrated in theories of consciousness itself, which is variously stated as arising from contradictions(Holt), some sort of an equation of potential energy (Montague, Munsterberg, et al), or still more plausibly worked out in a motor theory by Professor Washburn, summarized in the statement that "consciousness accompanies a certain ratio of excitation to inhibition in a motor discharge."<sup>2</sup>

There are many ways to express consciousness as a result or index of conflict. The organic primitivity of conflict is basic in psycho-analytic doctrine. "The stimulus is reality knocking at the door for recognition. The endless flux of outside changes each demands an answering change of like degree within. This balanced progress of adjustment makes up the moving equilibrium which constitutes the flow of life itself. Conflict is at the very root and source of life, it is the very stuff out of which life is made, and

<sup>1</sup>Dewey, Essays in Experimental Logic(1916)pp.9ff., See also Chapter IV.

<sup>2</sup>Washburn, M.F., Movement and Mental Imagery, (1916)p.25.



the necessary precondition of progress."<sup>1</sup> Stated as a law, the principle is known as Le Chatelier's theorem: "A system tends to change so as to minimize an external disturbance." Or to express this physical law physiologically it is Kempf's law." A motive... after its genesis, tends to express itself by forcing into consciousness sensations of exogenous origin or sensory images of endogenous origin which have the function of generating counter, neutralizing reactions."<sup>2</sup> Thinking is but one of the compensating processes by which equilibrium is restored. As fear prompts to run away and secure safety and each emotion has its compensating emotion, so "on a higher level are all those highly sublimated forms of conduct which express the creative energy in artistic, literary, and scientific productions."<sup>3</sup>

A real problem is characterized by some degree of desire for its solution. Dr. White's discussion of "Conflict" may well be drawn upon to characterize ways in which an organism may meet such problems. "...The activities of the organism that are brought about to neutralize desires may effect an adequate and efficient relation or they may not. The person who desires money and proceeds to establish himself in business and earn it has brought about an efficient relating of himself to his environment, but the person who wants money and does nothing about it but indulge in day-dreams of what he would do if he had it is decidedly inefficient in his relation to his conflict. Both, however, have dealt with the conflict by bringing about conditions that tend to neutralize the desire, tend to reduce the disturbance in the system brought about by the un-

<sup>1</sup> White, Wm. A., Mechanisms of Character Formation, An Introduction to Psychoanalysis (1916), p. 63.

<sup>2</sup> White, Op. Cit. pp. 64-5.

<sup>3</sup> Op. Cit. p. 66.





satisfied desire, one has reacted effectively, the other has reacted in a pathological way. In one case there was an efficient reaction to the demands of reality, in the other there was the building up of a world of phantasy."

This universal principle of conflict is bound to show itself in the form and structure of institutions, especially in language, and every act of thinking which finds an equilibrium, finds it only to make it a member of a new antagonism of contradictions, by which further steps in thinking are stimulated.

"...At the psychological level the conflict is represented by the two terms, the unconscious and the conscious, that is by what these two terms represent, the unconscious representing the inherent and acquired tendencies, the conscious representing the moment when they come into active touch with reality in an effort to effect adjustment."<sup>1</sup>

This question of organic compensations which arises in connection with the idea of conflict has its accompanying suggestions to make about consciousness, itself, and its origin along the boundary of past experience. Organic defect, in the case of inferior or sub-normal organs has a systematic tendency to be corrected by compensations. "Most compensations are in the psychic though not necessarily in the conscious field. No one is perfect, and hence compensation is necessary for all. It makes for, in indeed, it does not make consciousness itself...Compensation has its limits and when it breaks down we have anxiety..."

"...Consciousness itself is compensation and is the psychic aspect of a deeper biologic law....If the heart, digestive pro-

<sup>1</sup>White, Op.Cit., p.71. Cf. Dewey, Introduction to Essays in Experimental Logic.



cesses, lungs, muscles, are weak or go wrong, they come into consciousness, and curative agencies are initiated. Pain is the cry of the lower, older parts and functions of our organism to the higher nervous system for help....The sense of defect prompts training and education to cure and also countless devices to hide them. Culture corrects the errors of instinct and dress hides deformities. Thus nurture supplements nature, and environment has to rectify heredity. These processes constitute consciousness, which is always more or less remedial. Taine<sup>1</sup> conceived it as a mutual repression of opposite tendencies, any of which if not checked would develop into insane intensity, and he deemed the neuroses as only the most intense form of it. Where these integrating and compensating processes have more than they can do and break down, whether from strain of outer circumstances or because they find inner resistences too great, so that the power to rectify and adjust is exhausted, abatement of the life impulse is felt, and this sense of abatement is anxiety, diffuse or acute. It is the bipolar opposite of the pleroma of life abounding, which all crave. From this point of view, then, consciousness is incipient anxiety. ...from the genetic standpoint they [hope and fear] are the creators of consciousness itself, from its lowest to its highest form."<sup>2</sup>

The psychologists have somewhat minutely analyzed the purpose-attitude and have represented its structural features in picturesque ally theoretical form. Incident<sub>ally</sub>/to a wider study of purpose, by Professor

<sup>1</sup> Cf. with Washburn (Op. Cit.) and other motor theories.

<sup>2</sup> White, Op. Cit., pp. 249, 273-4 et passim. Quotes Hall, G.S., A Synthetic Genetic Study of Fear, Am. Jour. Psychol., Apr. 1914.





Warren,<sup>1</sup> the author gives an analytical statement of the distinctive features of purposive states of consciousness. "A human act is said to be purposive when it is preceded by an idea representing the situation which the act itself bring about." This idea of some future situation is (1) the forethought. One other characteristic factor at the beginning is (2) decision, wish, assent. (3) A feeling of potency is commonly associated with the forethought, a tendency to believe that the forethought itself has power to produce the result foreseen. (4) One is directly concerned in the outcome. One's purposes are not fulfilled by another. This consciousness of self may or may not be explicitly associated with the forethought; but the self is always implicitly involved in purpose. (5) During the progress of thought there is the feeling that certain thoughts or perceptions are suitable or fit. The fulfillment itself is marked by a feeling-tone of fitness if the experience is in the focus of attention. Some psychologists add (6) the fiat immediately preceding the initiation of the action. The mental states which intervene may or may not include purposive character...frequently they do when the act is novel or complex. The consciousness of purpose may be greatly syncopated. Accompanying desire may increase the intensity of the forethought and thus render its accomplishment more probable. Delayed execution is not due to lack of assent. The assent factor is the only differentia between purpose and sheer imagination. These statements are true particularly of purpose to act.

In ideational purpose the forethought does not exactly represent the outcome...The forethought is a problem: the fulfillment is

<sup>1</sup>Warren, H.C., A Study of Purpose, Jour.Phil., Psych.etc., Vol.13: Nos.1,2,3.



its solution. The intervening process frequently involves long continued hard thinking. So long as this thought series does not serve to fulfil the purpose the forethought remains focal: I am continually aware of my purpose to solve the problem....

...In motor activity the assent attitude is found to be an incipient kinaesthetic sensation which is aroused when our muscles<sup>1</sup> begin to be tense for the movement. When thought is succeeded by actual movement, this kinaesthetic sensation becomes stronger. It appears as a sensation of power or force. A corresponding sense of power is associated with the forethought even before the motor activity begins. This is found to be a memory image of former kinaesthetic sensations which is aroused by association where the muscular activity is represented....Its presence does not guarantee that the motor consciousness is really efficient.

The sequence of a thought and a corresponding perception constitutes the fulfilment of a purpose. (The order of cognition is reversed in purpose). How has this come to be if not through some selective power in the forethought? Thorndike says "A thought tends to be followed by the act which it resembles, because such a sequence has proved biologically useful." The same reason applies why a purposive thought tends to be followed by the perception of its fulfilment....Rational thought, like any other thought, is capable of forming only the associations which experience has given. There is no inherent power in the forethought to induce a rational conclusion....The man who succeeds in an inventive enterprise succeeds because he has a greater facility in combining familiar elements into new complexes....The only real potency that can be attributed

<sup>1</sup>Cf. Washburn's "tentative movements."





to a purposeful thought is a strong tendency to continue thinking about the problem....

...In every purposive consciousness some kinaesthetic data are present between the forethought and its fulfilment. The purposive self is based on these....The self datum is the least important factor in the purposive experience...less characteristic than the assent, less vivid than the potency-feeling. Still it should not be ignored in the study of purpose since in some form or other there is always a kinaesthetic self-reference in the fulfilment of every purposive thought.

The feeling of satisfaction and relief is found in connection with the memory image also....There is, however, a combination of recognition and satisfaction which is peculiar to the fulfilment of a purpose idea....which attaches to the correspondence between the forethought and realization. It is the judgment of relation with an affective tone attached - the sense of fitness....If the experience corresponds to our memory of the forethought, the association produces a judgment of fitness. The accompanying feeling of fitness is due to the facilitation of reaction which this association brings about.

...In mental problems the forethought does not represent the solution, but merely some characteristic of the solution. How we come to judge certain steps as fit and others not...hinges on the nature of rational thought.

Reasoning is a particular kind of association of ideas, more restricted than casual associations. The succession of thoughts in a logical train...tallies with reality again and again....leads continually to fulfilment of the forethought. This persistent



correspondence tends to build up cumulatively, in connection with "rational" thinking, a judgment of fitness which we have no opportunity to build up in the ordinary hit-or-miss associations.

The fitness factor has three characteristics: (1) It attaches to the final outcome and to certain intermediate steps in purposive experiences. (2) It does not appear in all...only in complicated situations...also only where the fulfillment is impeded.<sup>1</sup> But an implicit fitness or unfitness appears to characterize purposive experiences generally. (3) It is psychologically distinct from the forethought, the characteristic mark of which is its future reference, while the fitness-unfitness experience involves a sense of correspondence or disparity. It is not merely a judgment, but involves an hedonic element as well.

The distinctive feature of the purposive consciousness is thus seen to be an inversion of the usual temporal order of certain members of a series of experiences. In the purposive consciousness the idea precedes the perception, the general precedes the particular. The extent of this inversion is recognized in the judgment of fitness.

This account of purpose-thinking has been given largely in Professor Warren's own phraseology, but quotation marks have been avoided because the amount of omission and condensation often fails of full justice to the original in spite of actually quoted passages. The terminology here furnished serves us in the terminology of 'project' where an attempt is made to treat the pedagogy of purposive thinking.

<sup>1</sup>Cf. White, as quoted on "Conflict."





It has for some time been a truism of psychology that perception is by 'wholes' and has for a shorter time been realized by pedagogy that learning is profitably by wholes. "A piece of ice looks smooth, white, hard, and cold: we realize that only the whiteness of it is the result of present sense stimulation, and that the hardness, smoothness, and coldness are the effects of former experiences with the sense of touch and temperature. Now the way in which we form such combinations of sensations into perceptions is evidently not so much by adding bit to bit to form a mosaic, but by digging one bit after another out of an original whole....it is the fact that an object can still be responded to as a whole that keeps the specialized movements together in a single system, and thus gives the object its unity."....Of the motor responses thus linked together by their common outlet, the compatible ones become simultaneous systems" which they tend to become, if possible..."while the incompatible ones become successive systems...related to those parts of the object which must be attended to in succession." The advantage of hands and language is that objects can be moved and reactions secured from a whole group. "There is almost no limit to the complexity of the system combinations which can be formed through having a single motor outlet for an entire combination." The value of organizing learning into systems both simultaneous and successive is shown by Washburn<sup>1</sup> in the context of the passages just quoted and particularly in the chapter on "The Problem or Purpose." Against distraction, which seems to have a tendency to simplify the system that is formed, large systems have certain resistances

<sup>1</sup>Washburn, M.F., Movement and Mental Imagery, pp. 134-5.



peculiar to themselves, and these apply to large problem systems of learning as well as to simultaneous systems. The first factor of security against distraction is the amount of effort or resolution that is put forth to keep one's mind on the process to be attended to...."But often, of course, it is the interest of the material that holds distraction aloof." And it is here that Washburn's motor theory seems to express itself in such terms as to make it a direct explanation of that intrinsic character of a purpose which identifies it with what Dewey calls an "interest." "Now interest always means that some large already formed movement system is back of the material attended to, and that its momentum, so to speak, is such that the associative dispositions not involved in it will be inhibited. The advantage is always with the older and more complex systems.

"Levy-Suhl used the ability of a well-established system of associative dispositions to resist distractions as a test of the normality of the mind. Insane and normal persons were allowed to start a train of ideas suggested by themselves, and when it was well under way, they were interrupted by pronouncing to them an irrelevant word. Only a hopelessly abnormal mind meekly accepted this distraction and followed the new line of thought without reference to the old. A curious instance of the effect of the problem or purpose involved in an experiment is shown by the fact that Baldwin,<sup>1</sup> trying experiments by practically the same method, found that his observers, who were all normal, usually accepted the new train of thought almost at once. In his experiments the

<sup>1</sup>Baldwin, B.T., Associations Under the Influence of Different Ideas, Harvard Psychol. Studies, Vol. 2, pp. 431-473, (1906).





first train of thought, on which the interruption broke, was suggested by the experimenter instead of being self-suggested. The whole attitude of the observers was therefore that of attending to anything that might come from the experimenter, instead of really allowing an associative system to get possession."<sup>1</sup> In other words we have a situation in one case not dominated by the pedagogue, and in the other the typical student-attitude - readiness to desert anything, and come to the teacher innocent of any beginning of thinking; schooled to set up new systems at the dictation of the teacher, instead of incorporating into soundly established systems what the teacher, like any other help to learning, may bring that is new and appropriable. So far as we have gone with the problem of collegiate learning, the present practice reflects a policy of allowing the teacher and his 'systems' to be an accident so far as foresight in adapting compatible systems and avoiding incompatibles is concerned. This seems to furnish the specific terms of the precept that teachers should know their individual students. A minimum of proper procedure must be the avoidance of propounding systems which are surely not to find a place in those of the students as we may generalize the experience of a given group of persons; but an active aspect of the obligation to know the students states itself as an obligation to know something of what experiential systems individual students have available. This is not a feature of class-teaching, but a necessity of individual project-learning. This must be what we mean by urging the importance of the teacher's helping to select the best lines of individual research for students. To give such help he must canvass the pertinent experience of the student; better still, must help the student to canvass his own

<sup>1</sup>Washburn, Op.Cit. p.



apperceptive possibilities for choice of project-theme.

It is not possible to follow Washburn into the nevertheless pertinent discussion of the mutual influences of old and new systems. But the law of the influence of old systems upon new as exemplified in phenomena of memory images as they alter with time is worthy of statement because it in a way universalizes the pertinent facts of perception. "Whenever in a movement system, it is possible for an old associative disposition, based on much repetition, to take the place of a new one whose strength lies rather in recency than in repetition, the substitution occurs. This is of course precisely the fundamental law of perception."<sup>1</sup>

Even in this general chapter on purpose we have not yet come to any close terms with the thing which actually constitutes a problem-idea. But it prepares the way for an exposition, finally, under Professor Washburn's term "activity attitude," of what seems to me one of the most significant suggestions psychological theory has ever offered to pedagogy: a theoretical statement of the possible physiological mechanism of purpose, resolution, effort, and what is ordinarily called, voluntary action. In this plausible account of the way in which mechanisms may very well exist whose function should yield what has otherwise an atmosphere of mystery, we may have, I believe, in time, a revolution in some of the assumptions of a doctrine of work. We take up next a discussion of certain phases of the pedagogy of problem.

<sup>1</sup>Washburn, Op.cit. p.147.





## CHAPTER VIII

## THE PEDAGOGY OF PROBLEM

A minor, but important, pedagogical distinction is too infrequently made, and still less frequently enforced in practice. Algebra and geometry furnish aspects of this distinction, if we note the degree in which problem-thinking is actually involved in their "problems." The threshold of thinking lies above the so-called "problem" in geometry which is a printed demonstration or construction on the page of Euclid. No solution of any kind is demanded though thinking is expected and the task required ranges from mere memorization to considerable thinking. The thinking in geometry is in "originals." One may commit to memory with or without understanding and successfully repeat the demonstration. Subordinate "problems" may arise in the process of understanding the problem - if the student tries to understand it, but these minor difficulties do not constitute extended problem-solution. The student has no chance for arriving at Q.E.D. or Q.E.F. as a true eureka of his own. By the same tests, an original lies well above the threshold of thinking, as constituting a genuine problem demanding solution. The difference illustrated here may be called that between mere understanding and actual problem-thinking. The "problem" in algebra exhibits similar distinctions, if the method of attack be studied.

For pedagogical purposes we cannot too carefully scrutinize the difference thus roughly illustrated between real problems and exercises, which may involve lesser subordinated bits of thinking, but are not themselves the solution or problem. The distinction is clearly realized by many authors at least as one of



degree, but this attention we are giving to purpose as a protracted influence in thinking is bound to eventuate in a more adequate notion of the nature of collegiate study, whatever limitations it may have in elementary learning. Having asked myself the question: Is problem-solution something that does not simply characterize thinking in general, but is it a test of an advanced type of thinking? I have been interested to find such distinctions made as seem to me fully to justify setting out problem-thinking in a class by itself.

Instruction is commonly represented as a didactic exercise in imparting information. Not only is this characteristic of the great bulk of elementary instruction, but it is implied in the treatment of high school teaching as an art. There is repeated assertion of the necessity throughout for stimulating active thinking as necessary to the assimilative process, but assimilation of things predigested is implied in the tasks often, where not avowed in terms of methodic advice. The distinction deserves to be made, must be made for collegiate purposes whether we take Dewey's extreme view of the relation of information-getting to thinking, or merely note the distinction. "Information severed from thoughtful action is dead, a mind-crushing load....Thinking is the method of intelligent learning."<sup>1</sup> Obviously the mistake may easily be made and overlooked here that the thing taught is eminently problematical in its form, may even proceed by the orthodox canons of

<sup>1</sup>Dewey, Philosophy of Education, p.179. In How We Think, p.204 Dewey says: "The Herbartian method makes no reference to a difficulty [as a necessity of problem-thinking], a discrepancy requiring explanation, as the origin and stimulus of the whole process. As a consequence, it often seems as if the Herbartian method deals with thought simply as an incident in the process of acquiring information, instead of treating the latter as an incident in the process of developing thought."





form which are set forth in the books as the unmistakable signs of problem. "Problem" may even be bristling everywhere, the procedure of a class exercise may satisfy all the exactions of precepts on questioning, each step may be in response to challenge; and yet nobody, except perhaps the teacher, be charged by the insight of his own thinking at the outset with a problem which he consistently hammers away at, and of which he accumulates increasing degree of solution. Self-deception easily accompanies the recognition of the attitude and knit-brow of thinking, where the perplexity may range from an effort to find out what the teacher wants to an effort to work out the bits of pseudo-problem that take the form of inquiry. The demonstration of a "problem" already "worked out" is such a false-problem, which is really an exercise in the form of problem. Such expressions as these swarm in the pages of didactic pedagogy: "assimilation," problem solving"-meaning the working of so-called problems in algebra where the "problem" is not the thinking implied in the "un-stated" problem, not largely in the "statement" of the problem, which is a guess at "the case" it comes under, nor yet in the "solution," which is the manipulation of symbols of quantity and operation; nor finally, is the problem in the testing of performance which, instead of being a testing by comparison with real things, is a "testing" by observation that the thing seems to "come out even" or better yet corresponds with an "answer" in the back of the book.<sup>1</sup>

<sup>1</sup>There is no attempt here to quarrel with the idea of a genuine pedagogical value of the algebraic problem, which is given in English to be 'stated' in equational form and then, of course, worked out as an exercise. It is only suggested that the amount of fragmentary puzzling over the items enumerated is usually in excess of the amount of independent problem, which is problem because it starts with a desire to know instead of docility to be trained by exercises.



There is certainly much variety in type of exercise but thinking would be meagerly or at least fragmentarily represented. There is here, however, as there scarcely is in the non-original geometrical theorem and its demonstration, variety of demand upon resource and ingenuity, but here, also, there may not be 'problem' in the sense in which we are using the word - still less real problem - solution. Other phrases which abound are "selection," "reading," "exercise," "questioning," "getting information," "finding answers," "formulating questions," "discovering problems," "awareness of deficiency of information," "seeming to give final answers," "intellectual initiative," "research," "looking forward for corollaries," "making one lesson introduce another," "finding use to which principles may be put," "looking forward for possible uses," "studying by the use of standards," "preparation of a lesson," "execution of a certain task," "amount of effort students need to expend." "Progression is a test for effective training," "ability to go on with the next line of work," "intellectual demands made in courses," "mastering a given subject," "progression of intellectual demands within the course," marked by (1) "ability to comprehend a coherent narrative," (2) "to understand the physical facts which influence history demands power of comparison and associative thinking," (3) "mastery of evidences - critical evaluation of the original sources," (4) "critical comparison of the different authorities." "The first stage of science is to collect a few simple facts with a certain degree of accuracy." "The second stage of science is to try to develop some sort of general principle." "The third stage of science is verification, and so on." "We need careful analysis of the





mental processes which represent progress within the science."

"We need a list of the different kinds of mental activities that students are called upon to go through in each of the sciences and in each of the humanities to realize that there is always some memory-work essential to comparison and reason which come later in the subject." "Furthermore the student should realize as well as the teacher that there is sequence from memory to reason."

"The simplest stage in German is the stage in which the student learns by translation." Other expressions are "selecting ideas" "elaborating major ideas," "elaborating a theme." "Having gained some knowledge, the student should be trained in generalizing it" by "anticipating later problems," by "generalizing experience through reviews," by "crystallizing earlier studies in more comprehensive forms."..."Having learned the subject in its details, the student is now in a position to take a more general view of the whole subject."..."Principles too broad to be included in a single exercise ought now [in review] to be subjects of his thought."..."Broad general views...are results of all specific courses when the student has really mastered the subject matter that he has been going over." "Be able to remember ideas."..."The people who do not work enough are either constitutionally phlegmatic or they are distracted with outside engagements"--or it is for some other reason?

These are some of the expressions that characterize discussion of learning when the point of view is that primarily of imparting information by didactic processes - making persons 'understand' things. We shall be able, in a moment to show that authors,



nevertheless, make this distinction and it needs only to be pointed out, then, that thinking, as real problem-solving may be demanded as characteristic, at least of collegiate learning, while information-getting or understanding and remembering, is a much inferior and altogether subordinated process - inferior as many of the quoted phrases imply, because preliminary and necessary to the other, but not so significantly inferior because preliminary, as closely associated by intimate inclusion with the higher process. It would be a serious mistake to argue the separation of information-getting from problem-solving in practice, just because we are trying nevertheless to distinguish the two beyond the possibility of their confusion.

We have several traits of thinking, 'rational' thinking, which may be tried to see if they apply to the process of 'understanding' or information-getting. They are not necessarily co-ordinate, but inspection of their applicability may be made best in a tabular exhibit:

<u>Attitude of Learner in Information-Getting and in Thinking</u>		
	(Understanding)	(Problem solving)
Has a question	No	Yes
Has doubt	No	Yes
Skeptical attitude	No	Yes
Capable of credulity	Yes	Not if a good problem- solver
Belief by test	No testing thought of	Testing one of the steps
'Forethought'	No - No plan except the teacher's	Yes - prob- lem stat- ed





Decision	No - none implied	Yes
Wish	None implied in the process	Yes - genuine problem involves feeling
'Assent'	None implied in the sense here intended	Yes - the guaranty of the problem-attitude
'Feeling of potency'	No, nothing demanding it: attitude <u>passive</u>	Yes
Personal feeling ("empathy")	No (teacher may produce it in a measure)	Yes
Fitness - unfitness	Nothing in mind for such reference	Yes
Attention	Passive (except by power of teacher)	Active (by hypothesis)
Interest	Such as teacher can create	<u>Identified</u> with "interest" in Dewey's definition of the word.
Resistance	Overcome as teacher can	Provided against in the 'tension' of problem
Dependence - independence	Conventional type	Independent-thinking

Other types of distinction might be more or less reliably tabulated, but the purposes of such a comparison are better served in the tabular exhibit of apperception involved in adult thinking, and in less mature types, given on p. 179.

There seem to be two ways to slight the distinction between mere accumulation of information by didactic instruction and the organic process of learning through developing individual interests, smaller or larger. One of these is well illustrated by Dewey's in-



sistence<sup>1</sup> upon selection of essentially interesting actual experiences as the only teaching situations. This receives the assent of many teachers though by some as an impracticable ideal, and by many it is accepted as an ideal to regulate as much of practice as possible. The other way makes the distinction, actually or by implication, and treats the great bulk of educational effort under the presuppositions of an obligation to "impart information." The distinction, for our purposes, has little to say about the practicability of producing universally in elementary education the ideal situations of Dewey, in which real social situations shall furnish threads of assured interest. The only question left is that of the practicability of organizing collegiate study largely into such individually selected, pertinent tasks, as shall furnish the collegiate student what Dewey demands for all pupils. The facts in favor of such a proposal are, (1) that a foundation of experience (including information) is already attained, whether by ideal or awkward methods; (2) that the primitive racial and tribally social habits may be taken for granted, so far as the instructional obligation we acknowledge is concerned; (3) that the individual is therefore selected for this advanced undertaking as he would fairly be selected for any other thing not individually or socially necessary, and finally (4) that the basis of selection admitted in the premises is that he is ready to use acquired experience as 'context' for new intellectual ventures. These ventures, then, it is maintained, are to be not didactic as if written upon a blank page, but organic, because the individual is able to engage in initiative projects, in which

<sup>1</sup>Dewey, Philosophy of Education, p.56





further information is to be rationally accumulated as necessary to the thinking of the purposeful problem. It is hardly to be expected that Dewey would make this distinction, for the reason given, but other writers, who treat sub-collegiate pedagogy make the distinction clear.

The author<sup>1</sup> from whom I have collected the foregoing quoted expressions, as applying largely to the daily grind of instruction, sets forth the distinction as follows in a moment. (Doubtless from many sources this distinction could be verified to justify our demand that collegiate education may choose heavily from the real problem-thinking type of procedure).

But first, to show that the terminology itself, to which we are adhering by no means prevails in pedagogical literature, though I think Dewey would not call 'examples' or 'exercises,' or 'puzzles' or 'drills' "problems." He might demand problem-solution of a child too young to conceive it, but he would never mean "working out a 'problem'" by "problem-solution." A symptom of this confusion of terms is found in the reiteration of the word "application." By "real problems" a teacher often seems to mean those which he himself fully justifies because they deal with things known to be familiar in the learner's environment, or he may even mean simply problems which 'apply' principles he wants to teach. Of course, these may fail utterly to become in any sense, a pupil's own problem. "The school has undoubtedly been remiss in its attention to the phase of mental life which we here call application. Application is, however, a most difficult mental process, and needs to be learned just as the original principle

<sup>1</sup>Judd, C.H., The Psychology of High School Subjects.



itself has to be learned."...

"...Successive examples...should be treated as the opportunity on the part of the teacher to cultivate the attitude of application. The cultivation of this attitude will be defeated if the instructor starts out with the explicit statement that each of the cases to be submitted contains the particular factor under consideration. Thus if one gives fifty examples of the first law of mechanics, and explicitly states at the outset that these fifty examples are all manifestations of that first law, he will not give his students the same degree of training that he would have given if he had mixed those examples with examples of the other laws of mechanics and allowed the student to discover which of the laws of mechanics appears in each case."

"...In algebra it is a fundamental mistake to give to students all of the examples under a given principle, with a definite statement to the effect that all of these are examples of a single type. The student fails to get the mental training in this case which is desired....Students leave school without the ability to make applications as a separate mode of mental activity. The teacher ought to recognize in all of these cases that the mere solution of the problem is of slight importance if the student does not acquire that higher power of discovering the mode of procedure which is appropriate in each case. The solution of the problem is mere routine. The classification of the problem is a form of generalization."<sup>1</sup> Scarcely less naïve than the supposition made by the exhorted teacher that the "solution of the problem is mere routine," is the supposition that giving a pupil a chance to assort

<sup>1</sup> Op Cit. p.422.





puzzles is cultivating "that higher power" which is called "the attitude of application." Certainly none of this has anything material to do with "problem-solving." What it has to do with thinking is incidental, fragmentary, connected with "problems" which are quite subordinate to the thinking involved in real problems. Even if the so-called "problems," mere exercises at the best, are not arranged under one principle, they fall under a few at most. They engage instead of the "higher power" called "attitude of application," something very much like the attitude of the child who listened with what tolerance he could summon to a long-winded explanation of a "problem" in interest, then asked, "but, do you multiply or divide?" It would still remain to be shown that giving a student a chance to assort puzzles has much to do with "training" him to "apply."

The passages here quoted are closely connected with an assumption that the student is, nevertheless, doing some extraordinary mental stunts in picking out examples that fall under a "general principle." Such principle is not identified as a principle, if it be a true 'principle,' with any one of the examples in whole or in part, but "is the product in the individual's mind of a comparison of all these different particular cases....The power of making this comparison and of arriving at a general mode of procedure is a higher power than the power of solving the particular problem. This fact, that the recognition of the general principle is a higher type of power than that which is involved in the solution of particular problems, appears again and again in the training of students. There are many students who know how to solve a problem if they are told which process to employ, but



they do not know enough about the problem to select the process which is appropriate to the situation in hand. The mastery of the general principle is therefore a new type of mental achievement."

This "mastery," however, is so imperfectly conceived, so partially conceived that it is called acquiring a "general habit." There is no evidence forthcoming, first that the student who learns the trick of subsuming a process under a head has done much in the way of improving intellectual habit (if there is any such thing), while he certainly may have learned this trick without a considerable entrance into real problem as an engagement in thinking. The mastery of the general principle would certainly be a new type of mental achievement, but there remains to find any more evidence than comes through assumption in doubtful use of terms that any considerable beginning has been made in it by this kind of "solution of problems" plus guessing where they belong. If the student is really "learning - to extract from a variety of experiences a general principle or rule - the discovery of this general principle or rule is a new performance," but it is at best, a part only of all that is involved in real problem-thinking. "The cultivation of this power of generalization is the most important achievement in the student's education. It will not come without special endeavor on the part of the student and on the part of the teacher." It might well be added that training for it will scarcely come from a mere recognition that a principle is a generalization to which all are urged to be sensitive.

Professor Judd has here put his finger on the "new performance" or the "new achievement," the discovery of a general principle or rule which is necessary but not by any means all of thinking.





Besides the foregoing differences in terminology, there is further discrepancy of that sort, but still more important there seems a failure to "apply" that insight itself to cases of real problem-thinking. His illustrations of "methods of inducing generalization" seem to be all of them, devices for applying the principle of finding principles rather than examples of problem-thinking - a sort of practice-drill in picking out principles from unassorted matter guaranteed to conceal certain principles within it. They betray the teacher rather devising methods of didactics than scheming to involve the student in real learning situations. If, in other words, my deliberate purpose is to "devise situations" to "present to the student with a view to furnishing him the opportunity of applying his verbal formula" (miscalled, for these purposes an "ideal") "and making generalization," then the word "situation" has almost nothing in common with what Dewey means by an educational 'situation!'. One "situation" is a mere device to help convey the teacher's lesson, to solve the teacher's problem. The other use of the word 'situation' is technically significant as name of the student's setting for a real problem. Generalization is an important element of problem-solving, but it <sup>is</sup> one element among many, and, that not what could properly be called a 'didactic' element. A kind of a drill-game called "hunting for the principle" must be what Professor Judd fancies the teacher proposing to "lead to an attitude of mind which can be described as the generalizing attitude." If one could isolate this mysterious entity he would have in his tweezers a mate to "the habit of verbal analysis," which is "a general habit dominating all the detailed habits of mental life." This one seems the nurse of a



whole brood of another entirely different breed, 'detailed' habits the kind I think we should be most likely to recognize as actual habits keeping the meaning which has always been used for habit until the new genus, "general habit" was invented to mother the orphans. But seriously, the proof cited that "there is such a generalized habit of scientific analysis, which can be cultivated through the study of all the sciences" is the statement: "Science is a system of thought. Science is a body of generalizations. To construct this system of thought and these generalizations is a step in intellectual development beyond the mere acquisition of the impressions out of which science may grow."<sup>1</sup>

These statements could be thought to have pedagogical significance, if it were true that the constructed system of science were a mold a teacher could be thought of as taking and setting over upon the clay of the student's mind to duplicate such system in detail. Exclusive attention to the formative mechanism of instruction, framing it up in such doubtful psychological terms as "generalized habit," or "science is a system "which is to be constructed as a step in an individual's intellectual development, can only mean that we are taking no serious account of the fact that building up the student's mental world may have nothing in detail in common, certainly no identity, with the world's science whether taken as an actual system or as a figure of speech.

"...Experience shows in the most discouraging way that a student may know his algebra and geometry and not know how to apply mathematics to physics or to certain practical shop problems. Evidently one is not performing the same mental process when he

<sup>1</sup>Op.Cit.pp.434,344.





masters a mathematical formula and when he uses it. This suggests the study of the psychology of applications." <sup>1</sup> To put it only so is to remain satisfied to leave the cart before the horse. If the only alternative of subjects without applications is a psychology of applications we are still short even on our conception of rational pedagogy, to say nothing of actual improvements. It is only because we have prescribed algebra and geometry without actual problems that we are ever able to conceive of "applications" as a remedy. Shall we ever be able to see that to "master a mathematical formula" before applying it is as unthinkable as to propose a study of the dictionary to one who has made no study of language context? A formula is an expression of process. Process is a performance. There is really no such thing as practicing a performance before we do it. We may, of course analyze all the meaning out of it, and perform its partial processes out of connection, but the term "mastery" in no way applies, and to suggest such mental disorganization of process would be recognized as pedagogical ineptitude if we were not utterly used to it as the history of our practice.

It is not strange that the prevalence of convention in text books and other tools furnished us as teachers is strong. We are timid enough in making a suggestion that the attack might well be different. "It might be questioned whether the text book in geometry ought to give these analyses at the beginning. Certainly the recognition on the part of the student of the motive for these simple forms of analysis is not complete until he has gone farther in his study. On the other hand no student will begin to analyze

<sup>1</sup>Op.Cit.p.23.



his experiences until some one sets him thinking about the properties of figures. When the child begins to play with paper and pencils and finds that he can draw a great variety of lines, he is working toward the statement that an infinite number of lines can be drawn through a single point, but he is not likely to hit upon that particular idea until he has cultivated a large experience with lines and with points. On the other hand the scientist who has made a careful examination of the properties of different geometrical elements comes to realize the fact that this statement with regard to lines and points is the logical foundation for many of the more elaborate discussions and analyses of space. The writer of a text book, therefore puts this logically simple proposition at the beginning of his science."<sup>1</sup>

Two similar paragraphs on the problem of pedagogical arrangement extend the apologies for placing definitions first, for giving demonstrations and theorems that are "mere repetitions and elaborations of the definitions"; urging that "the geometrician undoubtedly holds that the student's time would be greatly economized if he could only take up the subject in the order which the mature science recognizes as most advantageous for the development of the later, more elaborate, propositions. Perhaps it is worth the effort to get as many of these obvious analyses as possible made, even if it becomes necessary to reestablish the definitions by later reiterations in more detailed form. The student may gain something by the preliminary statement, even though he does not gain all that he might: but the teacher of experience knows how little some students really absorb the first time they encounter these simple analyses. etc...." The import-

<sup>1</sup>Op.Cit. pp.52-3.





ant thing to be admitted is what is tacitly implied here, that there seems to be no suggestion by the text-book maker or its user that a pedagogical privilege extends in any considerable dimensions to the student who is to "absorb" geometry like that which was the privilege of the geometrician or the text-book maker, namely, to have a problem which needs to be solved. "In some cases a statement of the definition will induce the student to perform the desired mental process; in other cases, elaborate reasoning may have to be resorted to before the student is made to see the truth and its importance."<sup>1</sup> In any case, whatever good judgment and ingenuity is exercised together with patience and docility the problem of the teacher of geometry is to impart it, and the only problem of the student is to learn it. There is practically no question of anything in it that may be called problem.

The "supposed scientific analysis of space, which is the aim set by the teacher of geometry for his work" is conceived of as a set task of the teacher with every probability that the student's experience with the vital processes of space perception will be logical exercises instead. "The student should, in some way gain an insight into the methods employed by the author in solving his problem. Whenever it is possible more than one solution of the problem should be presented, and the merits and demerits of each solution should be discussed. Some comments on method should be introduced into the text itself. The only possible justification for giving a student a solution is to train him in methods of solving problems economically and in rigid form."<sup>2</sup>

"Three different spheres of experience in geometry are first,

<sup>1</sup> Op.Cit.p.53.

<sup>2</sup> Op.Cit.pp.62-63.



space perception: second an abstract system of logical steps constituting proof: and third rules of practical procedure....The teacher sees now that knowledge of theory, knowledge of the practical procedure, and direct percepts of space are all separate problems to be worked out; and furthermore he sees that the student must be trained to pass from one to the other....more instructional energy should be devoted to training students in these transitions. ...Only through the fuller cultivation of all these methods of thought can the student gain the advantages which come from each."<sup>1</sup>

One is prepared to realize that for Professor Judd ideas are something that can be "put into the mind," and even good habits well put in will 'transfer'. "Knowledge that does not transfer is inflexible and inert. It is badly remembered and was badly acquired. It shows that the mind is capable of taking in highly specialized ideas."..."Reasoning is the rearrangement and recombination of ideas."<sup>2</sup>

What has been done in the way of improving method in algebra even in the way of making it "practical" is reflected in the applause Professor Judd gives a new text-book, which "by its free use of problems and equations, furnished the student with the means of developing his ideas of the fundamental processes. To go through half a book on a subject with nothing but abstract examples of the processes that are to be used later is a great tax upon the interest and attention of the student. The change which has been introduced is undoubtedly <sup>of</sup> value in building up and maintaining the student's insight and interest."...Its "emphasis on space is in the interest of application of the science of algebra

<sup>1</sup>Op.Cit.p.67.

<sup>2</sup>Op.Cit.p.73.





and also in the interest of clearness of presentation of the various algebraic processes studied....This disposition to show the student concrete facts related to algebraic equations is one of the most important innovations that has been made in the presentation of mathematical sciences to secondary-school students. Algebra is remote from the ordinary subjects of real experience; consequently the discovery that space is at the same time a direct concrete experience and a means of expressing abstract relations is important to the teacher who is looking for some kind of experience which can always be used in explaining and applying algebra."<sup>1</sup> The text-book is quoted:"Some informational problems have been included with the intention of stimulating interest and not with the idea that such problems are practical or that they arise in every day life, or that it is the function of algebra to teach history, geography or other subjects?...The trouble is that algebra is usually taught at a time in the high school when examples from the sciences cannot be readily borrowed[!]. In this connection note that our authors make this statement (p.IV); 'A large number of 'motion' problems are given, which, with many problems based on physical ideas and physical formulas, should give much desirable correlation with the subject of physics. A very large number of problems are based on geometrical ideas, and as the needs of geometry largely decided the choice of the exercises in radicals, it is hoped that a close correlation of algebra with geometry has been secured.'" Then a remark of Professor Judd's shows why there is still some occasion for characterizing our schools and colleges as "back eddies of the world":<sup>2</sup>

<sup>1</sup>Op Cit.pp.109-110.

<sup>2</sup>Samuel Butler, The Way of All Flesh,p.257, speaking of English universities of about 1850



"Why should not material of this sort, which is perfectly natural and legitimate, be used to the exclusion of the artificial problems that have really no connection with either science or life? If necessary let us precede the algebra problems by an explanation of these phenomena which can be adequately dealt with by algebraic methods. It may prove wise for us to develop some simple notion of mechanics in the first years of the high school and postpone algebra to a later period." A postponement of algebra, as he himself suggests, is not aside from the answer, which answer to his question, turns far aside from the practices we have too long sworn by to give up at a suggestion. An answer to the question is another question: Why precede algebra with something to give it content? Why refuse to take content with its process as we do in real life? In language-studies we have about given up the heresy of "composition" without content. Probably because that was the most palpable abuse. The real reason why we have to talk of "correlating" things that belong together seems to be the hard-and-fast rule of practice which condemns a child to algebra in one grade and geometry in another and physics two grades farther on, apparently because these sciences are serviceable to engineers and others who have a chance to make a reasonable use of them. Because algebra, as algebra, without too much waste of algebra's precious time by "practical" problems and "correlations" must be elaborated as a separate science in a certain grade, there is nothing for Professor Judd to do but welcome the palliatives which gradually come in as improvements in algebra's methods. The high calling of a teacher of algebra is about summed up in this way: "The teacher of algebra is con-





stantly working, therefore, to keep alive and in operation a long list of principles of operation which students are constantly omitting. The omission means an error, and an error means failure to reach a solution."<sup>1</sup> And it might as well be added as the student's high calling in the same connection: Failure of solution means failure to pass.

Professor Judd's Chapter on Science, (XIV) finds a richer field for students in genuine problems. "...The first stage in cultivating the attitude of mind which is to be defined as scientific is that of discovering problems rather than that of seeking solutions....The difficulty with most of the science text-books and with much of the laboratory work is that the effort of the teacher is devoted to giving the student results. Science in its completed form is a statement of solutions of problems. Science in the personal form in which the student needs to acquire it consists in the stating of problems in such a way as to give the student an appreciation of the reason why anybody should try to work at the subject. There is nothing more fatal to mental life than the learning of solutions of problems which are wholly artificial to the student and not appreciated by him as having significance either for himself or for society."<sup>2</sup> One is compelled to raise the doubt whether so strong a statement can be true here and have no force in algebra and geometry. "Applications of science constitute a special phase of study" here too, instead of starting with problems and finding science. "The chief business of science, whatever its subject matter, is to train students to see problems."<sup>3</sup>

<sup>1</sup>Op.Cit. Chapter V passim

<sup>2</sup>Op.Cit. p.330.

<sup>3</sup>Op.Cit. pp.332-3.



One might rather say that it would need teacher's help, doubtless, not science's, to see problems, and that the solution of problems would in due time involve science, and that scientific statements would be things to end with rather than begin with, so that science might be "a statement of solution of problems." Instead of saying "We must discover devices which will arouse the problem-seeking attitude, and we must then focus this attitude upon the common-place surroundings of the students," (always grooming, nursing, stimulating, preparing, a jaded mind!) it might better be put: Meet native curiosity with situations where problems are; foster adequate solutions and get 'science' as a by-product. All authorities on thinking tell us that there is very little of it actually done in the world, and that it is done by very few people. Still fewer are the geniuses that actually discover problems. We seem to be making extensive use of text-books, but one wonders, sometimes, what teachers are regarded as being for. Even the laboratory has often tended chiefly toward letting the teacher dodge the issue of his relation to the student's solution of real problems. But we have discussed that in another connection.





## CHAPTER IX

## A MOTOR THEORY OF PROBLEM

Context

The psychologist's rigid definition of process leads him to simplify terms to their elemental uses. By 'context' he means the margin surrounding the focus of attention. In this definition he limits himself to cognitive elements. The pedagogist is also interested in a description of thought but craves much explanation in the interest of practice. The growing edge of experience where its fabric is being woven as cognition is our object of study, but it has other elements<sup>1</sup> which are bound to be involved in a study of conduct. We have given some attention to thinking and its problematic character, in the last two chapters, have proposed in chapter six 'project' as the collegiate form it may take, and shall have occasion to scrutinize the collegiate principles of project in the next chapter. The purpose of this chapter is to seek objective terms in which to express to oneself how a problem-idea may be thought of as working. For purposes of expression of pedagogical ideal the proposal is, then, to employ the help of experimental and theoretical physiologists as well as psychologists.

To the psychologist context is of interest as the setting of a more important focus: to the pedagogist, as to the logician, context is richer, if possible, than the focus of attention. It is the field of the moment's activity, and as it has the determinants in it of the moment's attention, it has a sort of priority to everything else of the moment. The momentary form experience takes, whether by combination of determinable associations or not,

<sup>1</sup>Dewey, Essays in Experimental Logic, (1916) pp. 1ff.



is, nevertheless, the thing that establishes the judgment of the moment. "No judgment of perception can be understood in its real meaning unless taken in its context. The reason for the expression both in form and in content can be understood only from the context." Criticizing the inadequacy of logical theories to deal with the variety of possibilities of such a moment of judgment, Pillsbury says further: "We have seen throughout that the same mental operation may lead to one of several expressions according to the social situation, the distance of auditors, their preparedness, etc. Similarly we can understand the connection of the elements in the mind of the speaker, only if we consider the entire situation from which it arises, the entire movement of thought in which it developed. Each of the theories that were examined is inadequate in part because it has not asked what the connection between the parts of the judgment is in the actual setting in which it arises. Instead they all ask what the connection might have been in any situation. To this no single answer can be returned. It might be any one of the forms of connection suggested, it may be none of them, but depend upon some chance succession of words. All of this leads to the one result that the nature of predication can not be defined in a single statement. Predication may assert any one of several connections. One can say which one is intended in any particular case only by a study of the actual purpose at the moment of judging. This may be known at first hand or from the context."<sup>1</sup> This one question of what predication of judgment may be made at a moment of experience serves to show that it is in context that the momentary form experience takes determines what happens and

<sup>1</sup>Pillsbury, The Psychology of Reasoning: Chapter on Judgment and Language, pp.168-9.





and is itself determined by what associatively makes up that moment's context. Taken in terms of a moment of experience, context is the inclusive name for everything that makes up mental activity. As to what shall come out of a context, "The selecting force is to be found in the purpose and the related circumstances of the situation, together with more remote experiences of the individual so far as these are not included in the purpose."<sup>1</sup> The act of summoning past experience to coöperate with the purpose of a present situation in making a meaning for an object is given the name 'extroversion', by which the psycho-analyst means an outward flow of the person's interest to objects or events by which they have the meaning for that person at that moment which the use of that moment makes.<sup>2</sup>

Pillsbury says further:<sup>3</sup> "What I have been arguing for is that the individual consciousness contains a system or systems that are on exactly the same general plane as this system of knowledge as it is formulated in the sciences. This system springs up in the individual mind in a way that is fully as difficult to trace as the development of the scientific conception of the world. ...Wherever it is found, it will be adequate to the experience of the individual. When developed it is what the individual calls his real world....

"...While the system in its entirety can not be conscious at once, it is always present as background of consciousness, and all experience is in terms of some part of it. The system is effective more as a possibility of reinstatement than in what is actually presented. When one part is presented there is felt the

<sup>1</sup>Op.Cit.p.192.

<sup>2</sup>White,Wm.A.,Mechanisms of Character Formation,p.220.

<sup>3</sup>Op.Cit.Conclusion pp.276-299,passim.



possibility of the reinstatement of all that remains....Any consciousness of the system seems to be nothing more than this accepted capacity for reinstatement. In fact, any bit of experience is nothing more than the consciousness that accompanies the point of intersection of open paths of association....Consciousness is of the whole with emphasis upon the part, never of the part alone. ...The consciousness of the system seems to depend very largely upon the connections that are established between part and part, connections that are reflected in consciousness over wide areas even if the particular mental state seems to be of limited extent.

"Granted the existence of this system of knowledge, all thinking is in terms of it. Thinking grows out of it on the one hand and on the other serves still farther to develop it. At any given moment it is the starting point of thinking and controls thought, and at the same time each end attained by thought serves to develop and enlarge the system...."

Lack of space forbids extended use just here of the terminology of a thoroughgoing motor theory to express objectively something of what may take place in context. Washburn's chapter on 'simultaneous movement systems'<sup>1</sup> is full of illustrations of what is conceived of as taking place on the margin where perception and learning are going on. The superior capacity of humans is in their power of holding together the parts of their experience by making reactions to a whole group of such parts as a single group. Beasts with hands, and still more, men with hands and language, have the unique capacity of unifying motor responses - which is "not only to hold together into a system our responses

<sup>1</sup>Washburn, M.F., Movement and Mental Imagery, Chapter VII.





to the various aspects of a single concrete object, but we can in a similar way form systems out of the aspects or features which a number of objects have in common. We can form those systems which are the bases of general ideas or concepts.... When material is learned with the help of any kind of aid [referring to the learning of nonsense syllables] it belongs to two or more movement systems when the learning is complete: one the 'new system which has been established, the others the old systems which functioned in the learning. Its recall when the point of correct recitation has been reached is due to the combined effect of all the systems, the newly formed and the older ones...."

Context is, then, the momentary background of consciousness in which anything mental takes place. Its richness or poverty will be reflected in the mental product of its focus. Stimulus for perception will find response in associative tendencies, and such ideas as context allows will be the result. In context determining tendency meets stimulus to result in emotion and action. What happens as belief, knowledge, or action, happens by virtue of the way earlier acquired tendency of the individual is able to express itself in the consciousness of the movement. He who has experienced little, being able therefore to doubt little, will be able to learn little. In context experience feeds upon the new in the moment to grow, and new context for the next moment is inevitable. The real significance of context as a productive margin on which knowledge may grow is not in the days of social, but in the days of individual, acquisition. The mental merit of the child and the tribesman is the negative merit of belief. Belief the psychologist finds to be a negative, not a positive, act. Complete



belief is characteristic of almost complete ignorance. It is a virtue only for the uses of conformity, mere adaptation. As such a virtue it has place only where enlargement of knowledge is not sought. Its virtue is only conservative. The function of the college is not conservative. Thinking must imply improved contexts; contexts improve for purposes of growth in thinking only beyond the borders where belief holds static sway. Context has a widening significance when its normal function is that of an individual whose knowledge is sufficient to range always beyond the border of credulity on a margin where context is always the edge of a new fabric whose texture is that of real thinking.

"We are made, so to speak, for belief, credulity is natural. The undisciplined mind is averse to suspense and intellectual hesitation: it is prone to assertion. It likes things undisturbed, settled, and treats them as such without due warrant. Familiarity, common repute, and congeniality to desire, are readily made measuring rods of truth. Ignorance gives way to opinionated and current error, - a greater foe to learning than ignorance itself. A Socrates is thus led to declare that consciousness of ignorance is the beginning of effective love of wisdom, and a Des Cartes to say that science is born of doubting."<sup>1</sup>

..."These two processes, of doubting the familiar, and imagining the unfamiliar, are correlative, and form the chief part of the mental training required for a philosopher....

"The naïve beliefs which we find in ourselves when we first begin the process of philosophic reflection may turn out, in the

<sup>1</sup>Dewey, Philosophy of Education, pp. 92-3, 222; See also Pillsbury, The Psychology of Reasoning, Chapter II, Belief; and Washburn, Movement and Mental Imagery, pp. 200-1.





end, to be almost all capable of a true interpretation; but they ought all, before being admitted into philosophy, to undergo the ordeal of skeptical criticism. Until they have gone through this ordeal, they are mere blind habits, ways of behaving rather than intellectual convictions. And although it may be that a majority will pass the test, we may be very sure that some will not, and that a serious readjustment of our outlook ought to result. In order to break the dominion of habit, we must do our best to doubt the senses, reason, morals, everything in short...."<sup>1</sup> It has continuous pertinence to our theme to note that the easy-going "belief" which it is the business of doubt to attack from the first - or as soon as context of sufficient content gives room for doubt - is a very different thing from the "intellectual conviction" which comes as a product of thinking. The force of this distinction appears throughout the discussion of problem and purpose, where doubt is one of the most important constituent elements of thinking, and where easy-going belief gives way to doubt, and the end of the process is conviction. Belief is shown to be not even a psychological datum, but the absence of doubt, which is something; whereas conviction comes after doubt has done its work. It must be noted, however, that no usage seems consistently to make this distinction, and the word 'belief' is used rather in the sense of that belief which comes as intelligent conviction.<sup>2</sup>

#### Affective Aspects of Purpose

Pedagogy may make but cautious use of psychological terms with which psychology has itself done so little as with 'purpose'. Most

<sup>1</sup>Bertrand Russell, Scientific Method in Philosophy, pp. 238-9.

<sup>2</sup>See Dewey, Beliefs and Realities, Philosophical Review, March, 1906.



of its terms are borrowed and its interest in practice compels pedagogy to announce the use it expects to make of them. In the pedagogist's 'context', as we saw a moment ago, much more was allowed than the psychologist's cognitive elements. Similarly purpose and effort, and 'feeling' itself, we must give notice of our intention to use as terms which apply in what we call practical situations. Not simply their description, or exposition, is our task, but their use, as all language is employed, as terms which have already been appropriated. 'Affective coloring' characterizes, for example, the mental processes the psychologist calls 'effort'. The pedagogist has not yet fully decided what he means by 'effort', but he knows at least whether he thinks there is 'feeling' in it. For him the word 'effort' must apply to something connected with 'work', a word the psychologist has no use for. Similarly 'purpose' is not 'purpose' to pedagogy except as purpose to do something. (ideational purpose, to think a problem out to solution, is equally 'doing something' in the sense intended). This wide difference in the use of terms is necessary, though it may at times be hard to observe. The pedagogist's 'context' is a good illustration of terms so appropriated by pedagogy, but not yet unequivocally defined.

"An intermediary stage for knowledge (that is for knowledge comprising reflection and having a distinctively intellectual quality) implies a prior stage of a different kind...social, affectional, technological, aesthetic, etc....It is a type of experience which cannot be called a knowledge experience without doing violence to the term 'knowledge', and to experience. It may contain knowledge resulting from prior inquiries; it may include





thinking within itself; but not so that they dominate the situation and give it its peculiar flavor....The distinction between the two types of experience is evident to anyone who will take the trouble to recall what he does most of the time when not engaged in meditation or inquiry.

"But since one does not think about knowledge except when he is thinking, except, that is, when the intellectual and cognitive interest is dominant, the professional philosopher is only too prone to think of all experiences as if they were of the type he is specially engaged in, and hence unconsciously or intentionally to project its traits into experiences to which they are alien.... He thinks of things as either totally absent from experience or else there as objects of 'consciousness' or knowing. This habit is a tribute to the importance of reflection and of the knowledge which accrues from it....

"...The intellectual element is set in a context which is non-cognitive and which holds within it in suspense a vast complex of other qualities and things that in the experience itself are objects of esteem or aversion, of decision, of use, of suffering, of endeavor and revolt, not of knowledge."<sup>1</sup>

The most palpable criticism of collegiate student-work, the one least likely to be combatted, is that, to say the least, the student-work itself, if by that we mean attainment through study, has not yet successfully capitalized the enthusiasm of the ordinary student. Plenty of precept might be marshalled forth from the pages of elementary pedagogy with a hope that some might be found to rectify collegiate practice in this matter, because of general application; and there is doubtless to be a great improvement

<sup>1</sup>Dewey, *Essays in Experimental Logic* (1916), pp. 1ff.



through revision of precept. We have here only to subject the suggested idea of 'project' to scrutiny for a test of its serviceability under each main heading. The affective life of the adolescent is peculiarly rich. The possibility of attaching the things the adolescent needs to do to the great strains of emotive tension bound to run through his experience seems on the face of it a plausible suggestion. This practical aspect of the question suggests inquiry into the nature of the connection of the affective life with the intellectual. The study of character from the point of view of the sentiments is a comparatively new field in which much is to be expected as it opens up. For our purposes we essay the limited inquiry into the account project will have to take of the part the feelings can be relied upon to play.

We need waste no time defending a doctrine of hard work, whatever controversies have had to be waged over "soft pedagogy" for children. A normal adolescent will do hard work of some kind before he passes on to maturity, and it may devolve a constructive burden of proof directly upon any activity that proposes to enlist him that it is worthy to bid for that expenditure of energy. It is almost axiomatic that nothing will get a fair share of the indefinite margin of his surplus energy unless it gets more than his conventional assent. One thing the college seems now to suffer from is the readiness with which that mere intellectual assent is given. The community is scarcely moved by any serious skepticism of the almost universal desirability of collegiate education. How much it suffers from deep conviction of the urgency of tremendous devotion as the price of the collegiate privilege is a more serious question. We speak in another connection of the





chance of waste of youthful ingenuity allowed to evaporate because met with no cordial response in the way of work to do which demands it. Perhaps still less to be proved, it may nevertheless be assumed that the waste of enthusiasm is enormous. The complacency of the ordinary collegian toward the things he conceives himself chiefly privileged to dodge would be a matter of amazement to the logical "visitor from Mars," though our present attitude is that of smiling comment. The saving feature of such attitude is our acknowledged ability to make our best jokes over what most profoundly affects us. If we cared as little to enlist the collegian in his business, as our jokes over his lack of seriousness might be taken to indicate, the joke would scarcely be on the puzzled visitor from Mars.

The nature of a purpose as that which controls a protracted adventure in thinking or doing, to an end - the pedagogy of purpose, is not yet represented in an extensive literature. Elementary pedagogy has done something with it but higher pedagogy whose problem it really is has not yet extensively investigated this type of problem. An aspect of the protracted problem must engage some attention. The identification of education with ethics, where they are, in common, studies of conduct, keeps the problem of values uppermost throughout. For the study of ideals as one of the most important of the acquired controls of conduct we are indebted to Professor Bagley's Educational Values. The distinction of "ideals" from "ideas" is the guide to our investigation of this aspect of purpose. This definition supplies the differentia of fundamental importance. An idea is an image plus a meaning. But an ideal is an image plus a meaning plus a strong emotional or affective color-



ing...meaning by this no more than that, "upon psychological analysis, the conscious 'stuff' that makes up an ideal is more vitally infused with a pleasant or unpleasant feeling-tone than is the conscious 'stuff' that makes up the idea....In general, ideals are the prime, the basic, the fundamental controls of conduct. Ideas are the subordinate, the interpolated controls. Ideals determine purposes: ideas guide to the realization of purpose. Ideals dominate large experiences or large adjustments. Ideas control the smaller segments of experience, the adjustments that are incidental as means to the desired or idealized end....The efficiency of ideals is largely dependent upon the emotional force that lies back of them - upon the directness of their reference to felt needs." The application of this principle in elementary conduct is direct and clear...."Ideals, as well as determining purposes also serve as standards or criteria for conduct in the realization of purpose. All of the recognized 'virtues' represent particularly this type of ideal. Honesty, personal honor, chastity, patriotism, altruism, self-denial, cleanliness, - all these are ideas which must be strongly and effectively emotionalized in order to serve as conduct controls. They have, it is true, an intellectual or ideational content, but this may be relatively simple. In any case, it is the emotional factor that is important."

But Professor Bagley's discussion of the part ideal, as an emotional force, plays in an ambitious purpose is brilliantly illustrated by his study of a great achievement, such as Peary's idea of reaching the Pole, (which thousands of men might hold as an idea), but which becomes an ideal by being "infused with a





powerful emotional force which made the idea directive over his conduct during the long series of efforts and trials and interpolated experiences."<sup>1</sup>

Unfortunately we can, as yet, only roughly observe this fact, without knowing with any exactness how much an emotional attitude contributes to an intellectual purpose. Our study of thinking as rational problem might be thought to be better separated from that of feeling, but one cannot go far with such a topic as purpose without discovering that it is less than half conceived while we divest it of the motive of ideal. Resort to motor theory is not out of place as help to express what we thus observe.

This aspect of purpose is given exposition germane to our discussion in the chapter on "Inspirational Functions,"<sup>2</sup> where it is shown that "an ideal or a prejudicial attitude may be engendered through forces of different types, but this vitalizing emotional element is always the essential ingredient. Self-interest is probably the most effective source of such standards, because self-interest is only another expression for the most fundamental and basic of all instincts, and every emotion must have its instinctive core....It is the combination of these two forces that constitutes an ideal. The intellectual elements furnish the meaning of the ideal: the core of instinct gives it force and vitality." The essential ingredients of a purpose, then, whether to pursue effectively a problem in action or thinking are intellectual and emotional and the emotional especially are traceable to instincts. Instinct is the firm substructure of whatever may be built up in human character, but it is especially in evidence in that aspect of thinking which exhibits itself in purpose. We may scarcely

<sup>1</sup>Bagley, W.C., Educational Values, Chapter IV.

<sup>2</sup>Op.Cit.Chapter XXI.



hope to construct an idea of purposive thinking which shall fail to show the deep marks of racial instinct - especially as these show in strong feelings. The pedagogy of feeling lies largely in the future, as witness the repeated efforts to conceive of moral instruction through intellectual processes chiefly. The emotions are not only themselves still to have due attention with reference to their own claims, but evidently no pedagogy of thinking can be conceived apart from the pedagogy of the feelings.

Though the psychology of the feelings has awaited its turn after cognition, the emotions are now sufficiently an object of interest in psychological literature to warn us to narrow our attention to those aspects most evidently germane. Yet it is probably wise to realize that any important activity like pursuit of purpose in solving problem gets a large part of its character from the feeling element in it. "Until recently there has been a tendency to give feeling but a small place in formal education. The emphasis was placed on mere intelligence, particularly on mere knowledge. We know, however, that facts as such have no value in the control of conduct. It is only when they have some worth, when they appear valuable to the individual, that they lead to action. There must be a glow of feeling, a desire for some form of approval, a prejudice, that attaches itself to the mere fact and gives it a sanction."<sup>1</sup>

We shall not make an adequate statement of the intimate personal character of 'project' unless we provide for its being entered into with the kind of zeal youth is capable of. Exhortations to incentive are empty, but to attach a thing to instinctive

<sup>1</sup>Op. Cit. pp.98-99.





chords of enthusiastic interest, if it be plausibly done, is to avail of a power the college has a right to bid for. There is some evidence that what the student feels to be a "scientific method" of doing a thing is a legitimate appeal for his devotion. The activities of students which now engage enthusiastic devotion have been shown to be the things which are actually done by effective methods, like base-ball and some types of student-managed social activities. One at least has a chance to decide whether he likes a thing if the thing is well done. Doing a thing by the right method is not only efficiency, but according to Dewey, is what we mean by 'interest'. Perhaps a reason why the student is now so impartial in his choice of the things that do engage his enthusiasm by close attachment to his instincts and his powerful emotions, is because his relation to courses provides no mechanism for the exploitation of his emotions. Teachers are sometimes enthusiastic, but teachers, as we have seen, have their mechanism of purposive absorption.

What may be the nature of that personal core which seems to be demanded for the student? I think it must first be said that there is no hope for the continuity which is necessary to make a student unless a way may be devised to make a person and his own mental life the basis of that continuity. How the active thinking of individuals creates 'scientific' as well as 'normative' judgments, and supplies the only conceivable basis for continuity is profoundly shown by Professor Dewey in an essay entitled The Logical Conditions of a Scientific Treatment of Morality.<sup>1</sup> The principle there announced as the postulate of continuity of experience is a convincing assurance that the experience that establish-

<sup>1</sup>Decennial Publications University of Chicago, First Series,  
Volume III, 1903.



es the character of judgments still more emphatically declares the personal, individual character of such experience. Nobody else's continuity can "vicariate" for me. There is only one continuity of experience for me, no matter what metaphysics may want to do with it, and that is the continuity I know as mine. Whatever subject, or science, or course, or other experience may already be the possession of my teacher, nothing corresponding exists for me until my active experience builds it up. There is something so warm and intimate about the motive we are identifying it seems best classified as affective; I believe it is even instinctive.

The pedagogy of avocation<sup>1</sup> is pertinent. Recalling the fact that collegiate education as we are treating it is conceived of as liberal, hence cultural and personal, motives operating within it are wisely rated as preferably personal, individuating, characteristic. This is of the nature of avocation, a pursuit which is peculiar in the strength with which it entices my enthusiasm, takes the right of way and subordinates my other interests, may make itself, for the time, the structural core of my current experience. As empathic, it displays that converse of an ordinary cognitive experience's pattern: Its core is not sensational but imaginal and its context is of sensations, that is, it has an emotional tendency to dominate. Now it is not necessary to conceive such a "hobby" (which is a good general name for an empathic project) as taking possession of one to have pedagogical efficacy. One may, and often does, deliberately choose such a hobby, and use it for recreative purposes. Something like this may constitute the project which one chooses wisely because it presents an active

<sup>1</sup>See Johnston and Others, The Modern High School, Chapter on Education for Avocation.





personal way to carry the continuity of one's experience into the territory upon which one has designs. It may be chosen as one chooses a friend: not without an invitation to emotional attachment, but, certainly with keen appreciation of congeniality.

This 'hobby', expressed, for the sake of emphasis, in extreme terms, I have been calling 'cycle', that is the alienist's persistent idea or memory, or better what he calls an 'imperative idea', or an 'obession'. The "adjustment constant with us while we are in a certain mood," becomes pathological when that mood tends to repeat itself either periodically as in alternating and recurrent forms of insanity or to assert itself, not with a fixed rhythm, but oftener and oftener because, for some reason, so many associative paths tend to empty into it, that "everything seems to suggest" our pet idea. Under 'context', as the cognitive aspect of apperception we see that single, large apperceptive 'systems' build themselves up and get associative strength and persistence by repetition. We have now in addition to note that the emotive accompaniments seem also to be powerful adjuncts to this tendency.

"Whatever the mechanism, ideas with strong emotional tones (particularly fear, anger, jealousy and disgust), no matter how absurd or repellent, or unjustified, and whether acceptable or unacceptable, tend to become organized and welded into a complex which is thereby conserved. The impulsive force of the incorporated emotion tends to awaken and give expression to the complex whenever stimulated. The recurrence of such an organized complex so far as it is reproduction is, in principle, memory, and an imperative memory or fixed idea."<sup>1</sup>

<sup>1</sup>Prince, M., The Unconscious, pp. 277-8.



"The patient with a well marked complex formation finally gets so that almost everything in life is assimilated in some way to the complex."<sup>1</sup> The corresponding normal state of attention seems to me to be that of the expert or the specialist whose mind stands peculiarly open to things that are pertinent to his specialty.<sup>2</sup> A project implies such an intensification and spontaneous recurrence of attention. I am inclined to think that a "persistent idea" or its equivalent is a necessity as the continuous core of real thinking.

We have seen in the discussion of purpose, how the principle of conflict<sup>3</sup> is held to be generative of consciousness. One way to express this is in terms of what results when obstruction of reaction occurs. "An instinct, when checked in its normal expression always sets up a disturbance in consciousness and in the behavior accompanying it, and this disturbance is clearly an emotion. But an acquired desire, when blocked, may also give rise to an emotional disturbance....An emotion never arises except under conditions of unsatisfactory and incomplete adjustment."<sup>4</sup> "Mere unsatisfactory adjustment does not give rise to an emotion. There must be added the fact that the behavior is not sustained in any one direction for any length of time and that it is incomplete in the sense that it fails to attain any result, whether pleasant

<sup>1</sup>White, Mechanisms of Character Formation, p.187

<sup>2</sup>See Titchener, A Beginner's Psychology, p.98.

<sup>3</sup>See White, Op.Cit., Especially Chapter IV, The Conflict. See Crile, The Origin and Nature of the Emotions, passim; and Cannon, W.B., Bodily Changes in Pain, Hunger, Fear and Rage, for the effects of certain psychical processes, notably emotions, on bodily activities.

<sup>4</sup>Colvin and Bagley, Human Behavior, pp.78,80.





or unpleasant. There is more or less suspense in behavior under the stress of the emotion. It is uncertain and fluctuating. There are rapid shifts in attention and, connected with this, relative confusion in the thought processes....Clear thought and definite action kill the emotion....I do not rid myself of the emotion until in some way by a definite act or by a train of ideas that stand for acts, I become aware of the situation, and happily or unhappily cope with it....In accordance with the various facts emphasized...we may define an emotion as a complex state of consciousness of high affective coloring, involving an intellectual and a will attitude: appearing under certain stress in a rapidly developing situation, either actually present or ideally represented, to which situation adequate adjustment is temporarily blocked; and accompanied by bodily sensations of considerable intensity. In this statement are embodied the facts: (1) that an emotion always has strong feeling elements; (2) that there is a recognized object toward which the emotion is directed, and in the presence of which some activity is demanded; (3) that there is always a difficulty to be faced and that this difficulty is suddenly presented to the individual; (4) that the emotion may be the result of a situation not concretely present but brought up through imagination; (5) and finally that the organic sensations accompanying the emotion are important elements in it.<sup>1</sup>

<sup>1</sup> Op.Cit. pp. 80-85. The idea that all consciousness, especially that marked by affective tension, results from the state of balance of conflict between stimulus and inhibition is of speculative interest in this connection. Besides the theory of Washburn which yields the illustration we use, the works by White and Crile, with the references they cite, are of interest throughout. Dewey, in showing that action with a purpose takes time, during which there is much redistribution of energy within the organism to prepare a determinate course of action, and much accentuation of consciousness, accompanying the tension as the adjustments are



This presence of an emotion, a strong form of feeling, is shown by this passage to be well intended to mark a situation characterized as 'tensional'. It is specifically illustrated in terms of motor theory by citation of the effect of an emotion in dissociation. in Washburn, Movement and Mental Imagery, Chapter XI. "...There are certain circumstances under which the normal and natural formation of associative dispositions fails to occur....Four different conditions seem to be involved, general disturbance or shock to the organism," as (1) when a person answers a telephone call in the midst of being under strong emotional pressure and afterward forgets all about having done so, or one forgets utterly the doings of the few minutes preceding a severe injury; (2) the disagreeableness of an experience seems to dissociate it from other experiences, (3) concentrated attention, or (4) hypnosis is responsible for the dissociation.

"Why should strong emotion of any kind, including shock, interfere with the normal formation of associative dispositions? An emotion is a movement system of the greatest possible complexity. When fully developed it involves practically every muscle of the body. Every bodily movement and every idea feel its effect, either in the way of excitation or inhibition. Now ordinarily, when one movement system intervenes upon another one, the interrupted system, while inhibited for the time, remains in a state of readiness to be resumed." Two stories, told in interrupting bits maintain their own connections and carry over the interruption of

(1 - Continued)

being coordinated into a unified attitude, says:..."Normally there is an accentuation of personal consciousness whenever our instincts and ready formed habits find themselves blocked by novel conditions."





each by the other, if "the interruption has not been absolute. Some parts of the complicated movement system set going by the first sentence of story A continue in activity, even during the interruption [made by introducing a beginning of story B] : such parts, namely as do not involve movements incompatible with those of the first sentence of the interrupting story B. Now the more far-reaching and complex the movement systems started by story B, the less possible will it be for any portion of A's movement systems to remain active over the interval. This would explain why a strong emotion makes so complete an interruption, and prevents the formation of associative dispositions between the events which preceded it and the events which followed it."

So, according to Freud, Washburn says, "association with what is unpleasant, and for that reason avoided in thought, is very likely one of the actual causes of interference with the normal working of associative dispositions. To form an idea of how this effect is produced we may first note that if a movement already belongs to a strongly formed movement system, it will enter with great difficulty into any system that contains incompatible movements with those of the first system."...If the minor instances Professor Washburn cites of interferences take place, "how much more readily" she says "can a great and complicated system like what the Freudians term a 'complex', a system of ideas bound together by being connected with a strong emotion, produce such interference. The suppression of a complex - that is of the ideas connected with a disagreeable experience - takes place through the presence of a stronger emotional or affective state of the opposite character. The normal attitude of a healthy in-



dividual is an attitude of cheerfulness. Now an attitude of cheerfulness is an actual static movement system [that is a compensatory system, like that which holds the head erect by the constant flexion of opposing muscles evenly balanced in their action; not a 'phasic' system like that which moves an arm or effects locomotion] involving certain innervations. A person in the attitude of cheerfulness is incapable for the time being of a depressing thought, for precisely the same reason that he cannot pronounce t and g at the same time: the movements involved are incompatible. 'How long, oh healthy reader' asks James, 'can you now continue thinking of your tomb?'"

Washburn's whole treatment of this subject of dissociation as well as her chapters on purpose and on the formation of new movement systems under the influence of problems is germane to our purpose. Especially is the conception of a static system essential. Like those just mentioned, sleep she regards as such a "movement system, an attitude - one of complete relaxation, the inhibition of any muscular contractions whatever. This attitude, like any other movement system, is brought about by the operation of associative dispositions. It is suggested. When all the surroundings are favorable, including the external surroundings, the quiet of the sleeping room, and the internal surroundings of fatigue stimuli, then the attitude of sleep is produced, just as a name is recalled when the associative dispositions leading to it are set in action. Now if sleep as an attitude is complete muscular relaxation, perfect sleep will, of course, be unconscious, because consciousness is dependent on motor contractions." (Washburn's motor theory of consciousness is that it is expressed by





the ratio of stimulus to inhibition).

This interesting application of motor theory has been introduced here, as Professor Washburn herself uses it, closely connected with profound emotions, which are themselves examples of encompassing and dominating movement systems. A complete system, like dreamless sleep, forbids all activity of the kind which results from a lack of equilibrium of stimulus and inhibition. After giving a little more attention to the application of her theory to the idea of problem we shall be ready to discover what is meant by 'activity attitude', the one most important conception of the theory for our purposes, and for the suggestion which the theory itself all but makes and fully supports, viz., that the pedagogy of project is an application of the principle of identifying a purpose with a large, prepotent, static movement system, a directed activity attitude.

If one were tempted to suspect that the motor mechanism, sought to carry a purpose-idea, is an emotion-complex itself, a fuller study of Washburn's suggestions would disabuse one of that notion and corroborate the many statements<sup>1</sup> that strong emotion is anything but coöperative with deliberate actions - perhaps problem-thinking least of all. Her proposal, on the contrary, is that the thing available is rather a 'static movement system' resembling the emotion-complex, in its capacity for domination, but not in its tendency to block the wheels. Her theory has been introduced here under her discussion of dissociation, (1) to show its general relation to theory of emotion, (2) to exhibit - by the extreme example, sleep - what she means by a

<sup>1</sup>See Thorndike, Educational Psychology, Vol. II. pp. 226ff. for the influence of emotions on improvement in learning.



'static movement system', and (3) to introduce the material suggestion for our purpose which we take the liberty of appropriating to the uses of collegiate pedagogy. The mechanism which offers itself to pedagogy's demand for help to carry the purpose idea which we call a project is a persistent movement system capable of rendering such service, and free from such other service as 'phasic' movement systems are constantly called upon to render,— 'static' systems, able-bodied, but on the reserve list.

### Activity Attitude

Problem and purpose treated under a doctrine of 'project' involve the questions of activity, effort, will, as well as the relation of these to aim and purpose, attention and apperception. Classes of attention, 'passive', 'active' and 'secondary passive' are fully discussed elsewhere.<sup>1</sup> "The business of the school is to overlay the lower apperceptive systems with those of higher degree."<sup>2</sup> We may bear in mind that it is not childhood nor boyhood, nor earlier adolescence that we deal with, but later adolescence, with many intellectual traits that are virtually adult. Moreover it has been provided in the premises that whatever may be proposed as reasonably to be expected of collegiate students in the way of devotion to tasks, shall be what may be demanded of persons chosen for a particular kind of work. It is a special type of work demanded of a chosen class of persons. With these provisions, I venture to propose collegiate work in pursuit of well organized individual projects as a type of work which suits the requirements of 'secondary passive attention'.

We have, as I believe, a theory of effort which justifies

<sup>1</sup>Bagley, Educative Process, p.97

<sup>2</sup>See table at the end of this chapter





this proposal. The claim for it made by its author is: "The theory here suggested is the first, so far as I know, to explain how a bodily attitude like that of effort can actually be the cause of improved mental work, by prolonging through its own persistent nature the influence of the problem on the associative processes."<sup>1</sup> Before stating this theory, however, it is desirable to have a fair background of definition from different psychologists of their idea of what 'effort' is. "The characteristic conscious accompaniment of voluntary [active] attention is a mass of strain sensations, sensations which, taken together, constitute the feeling of effort....All attention involving conflict of motives tends to arouse diffuse contractions of a number of muscles, contractions which are in themselves of no great effect upon the attention process, but which are accepted as an indication that some force is active. They make us feel active, are said to constitute a sign of the activity of the will. So far as we now know, they are not a cause but an effect, they are a sign, not of a new force, but of a conflict of conditions. That they have no good effect is evident from the fact that they do not accompany the most effective attention, and, when they appear usually die away as soon as the highest stage of efficiency of attention is attained. Voluntary attention is produced by social pressure and is accompanied by strain sensations. All strain sensations taken together constitute what we call effort."<sup>2</sup>

"To have an interest is to take things as entering into such a continuously developing situation, instead of taking them in isolation. The time difference between the given incomplete state

<sup>1</sup>Washburn, Movement and Mental Imagery, p.162. Somewhat minute study of this book would be essential to a complete understanding of the author's thesis or ours. See especially Chapter VII.  
<sup>2</sup>Pillsbury, Fundamentals of Psychology, pp.263-4. Also p.245.



of affairs and the desired fulfilment exacts effort in transformation; it demands continuity of attention and endurance. This attitude is what is practically meant by will."<sup>1</sup>

"Secondary active attention thus appears as a stage of transition, of conflict, of waste of nervous energy, though it appears also as the necessary preliminary to a stage of real knowledge."<sup>2</sup>

"If the strongest stimulus always forced itself into the focus of consciousness...sustained effort and all that it implies would be hopelessly out of the question....We still follow the strongest but not the strongest external stimulus"...though"the contrasting stimuli from the outer world always tend to distract the mind from other processes. This tendency expresses itself in a movement which must be inhibited. Thus originates the effort that characterizes this later development of attention. It is always a battle as it were against nature - a constant struggle against fundamental forces....The capacity for work is the capacity for sustained effort....The important elements [of an attentive state] are muscular and strain sensations."<sup>3</sup>

Professor Washburn<sup>4</sup> asks the question: "Is it possible to explain directed, controlled, purposeful thought, without introducing any new principles and laws beyond those which govern the mutual relations of associative dispositions?" It is to her affirmative thesis that we must give attention for statement of the psychology of 'activity attitude'. "The question for us" she says "is evidently, 'What is the physiological basis of determining

<sup>1</sup>Dewey, Philosophy of Education, pp.161-2. See also p.403.

<sup>2</sup>Titchener, A Beginner's Psychology, p.99.

<sup>3</sup>Bagley, The Educative Process, p.97.

<sup>4</sup>Op.Cit., p.151.





tendencies?' If associative tendencies or dispositions are based on lowered synaptic resistances between the kinaesthetic centers excited by the performance either tentative<sup>1</sup> or full, and the motor center belonging to another movement, upon what are determining tendencies based? And a necessary step toward the solution of this question is as evidently a consideration of what constitutes a problem idea." She answers that its distinguishing characteristic is the persistence of its influence. Some ideas as for instance those with emotional suggestion have stronger secondary functions than others, that is, tendency to persist, whether they are problem-ideas or not. Besides these secondary functions, memory after images (acting for limited time), and perseverative tendencies (the spontaneous tendency of an idea to recur), are aspects rather than explanation, of the problem. The suggestion that a problem idea has a stronger 'reproductive motive', another renaming rather than explaining: also the suggestion that the relative permanence of a problem idea's influence is due to a combination of associative tendencies, i.e., to 'constellation', though going further, is still not sufficient. This latter explanation answers better for complicated problems where it naturally

<sup>1</sup>Tentative movements are, in Professor Washburn's theory, the imperceptible muscular movements invoked as a necessity of her motor theory—furnishing actual movement with its reflex motor tendencies when a larger movement is not present as a regulative principle.

"Every visceral organ is supplied by sympathetic fibres, which work antagonistically to the autonomic.

"Hence it may be stated that the normal progress of functioning of visceral organs is a well regulated interaction between two contrary acting forces?

"The viscera are not in a state of flaccid inactivity until, called upon to respond to some stimulus, but in a state of balanced contrary innervation which makes response more prompt and easy in either direction. Like the muscles of an athlete they are in a state of tension - tonus - capable of responding on the instant to demands of either offence or defence."

White, Mechanisms of Character Formation, p.68.



takes some time to work out the movement, than for a simple, but protracted mental task...."We do not add because we have got into the habit of adding, but because we formed the 'resolution' at the outset to add. In this resolution something more than ordinary associative processes, whether simple or complicated, and something more than the perseveration of associative processes, seems to be at work. Thus we find several authorities implying that there is an affective or emotional aspect to the problem idea.<sup>1</sup> Claparède declared that logical thought is distinguished by the presence of a 'sentiment of the end'. Meumann says that the capacity of fixing attention on the idea of the end is connected with affective life...."We have had this in mind in our last section. But the most important aspect of the question is stated as follows by Washburn.

"We shall take it for granted that the most essential thing about a problem idea, as distinguished from other ideas, is the persistence of its influence, and that to explain this persistence we need to invoke something over and above ordinary associative dispositions: in other words that an associative tendency becomes a determining tendency through the operation of some factor that is not itself an ordinary associative tendency.

"Let us take a very simple case of the operation of a problem idea, that where a person is instructed to direct his attention towards a particular aspect, say the color, of an impression that is to be given him, and to note whether the impression contains a particular color, red. Now according to our general theory, the words of the instruction set up the tentative

1See References cited by Washburn at end of book.





movements belonging to the color red. These tentative movements, however, are not set up merely for an instant, but persist until the impression to be judged is actually given; or if they lapse momentarily, when there is a long wait between the giving of the instructions and the presentation of the impression, they renew themselves spontaneously. We may call tentative movements which thus endure and recur, persistent tentative movements. I think we shall find them characteristic of all cases where a problem idea is operative; of all cases, that is, where mental processes are directed and not random.

The important fact about a problem-idea is, then, the persistence of its influence. The appeal we are making for individual project as the normal method of collegiate learning is an appeal based upon the supposition that such a problem may persist as an individual's intellectual task. It is clearly a matter of profound importance whether our doctrine of effort to sustain problem must be one of vague hope that something will sustain it, or may be more substantial. It amounts to the question whether 'effort' is the name we give to physiological strains which accompany other activity, or whether 'effort' may be the name of a definitely conceived type of activity which is itself at least part of the cause of problem-persistency. "All students of the learning process report the great influence of effort, the determination to improve," Professor Washburn says, in introducing the claim of her theory as we quoted it on p.159. "Now the natural causative influence of effort on learning has usually been regarded as due to a more or less mysterious will process, of which the bodily attitude characteristic of activity or effort was merely an ac-



companiment."

We have noted the important distinction between random thinking and thinking which is that of persistent problem, also that associative tendency accounts for random thinking. Many efforts have been made to account for the transformation of mere 'associative tendency' into 'determining tendency'.

From many sources comes the suggestion that the mechanism of such persistence is emotive. One sees at once the primitive importance of spontaneous tendency to activity and the chance afforded for choice of activities of great strength as carriers. One feels next the force of the suggestion that primitive mechanisms are ready in the major emotions. But their non-availability for this service is the first thing made clear. The suggestion is productive, but not by the acceptance of the emotive complex itself as such a carrier. It is powerful enough, dominating enough, pervasive enough, perhaps purposive enough (if we accept the right theory of emotions). That a major emotion may be wide-spread enough to carry so large a thing as a persistent purpose, and that it may be free, so far as other demands upon it are concerned, leave it, nevertheless, not the kind of carrier sought. It is not so evidently insufficient as inappropriate, as the nature of the actual vehicle of a persistent idea shows.

To be prepared for what Professor Washburn finally offers as what we have called the 'carrier' of a problem-idea, it is necessary to note here what she offers instead of the emotive complex as such a vehicle. Two kinds of 'movement systems' are distinguished: 'phasic', as those which govern locomotion or the translation of a limb through space, and 'static' systems, like





those which secure posture by the action and reaction of opposing muscles producing equilibrium. An extreme example of an elaborate static system was given in our last section. A much fuller account of such systems than we can give is necessary for a complete understanding of the theory. It has to be noticed here that the static system requires the simultaneous and continued innervation of a whole set of muscles. Two causes limit their duration, fatigue and "the occurrence of a stimulus which demands of the organism a motor response 'prepotent', that is having by inherited arrangement the right of way over the motor innervations involved in the static system. In the case of those typical static movement systems, the external bodily postures, such as standing or sitting erect, a stimulus leading to actual movement tends to be prepotent over the static system stimuli. An internal static movement system, not involving the muscles of locomotion, would be less liable to interruption from prepotent stimuli. If an internal static movement system relatively permanent by virtue of its essential character, can be associated with any other motor excitation, it would have the effect of making the latter persistent, and constantly tending to renew it. In other words, if the motor excitation on which an idea is based can be associated with an internal static movement system, it will acquire the persistence needed to transform the idea into a problem idea."

Next the 'determining tendency' itself is proposed by Ach<sup>1</sup> and skilfully analyzed,<sup>2</sup> but according to Washburn "no suggestion

<sup>1</sup>See Washburn's chapters VIII, IX, and X, and especially references at the end of the book.

<sup>2</sup>Compare Ach's analysis of determining tendency in detail with Warren's analysis of purpose-idea. For the aspects of personality involved see Calkins, M.W., in a review of Warren in the Journal of Philosophy, Psychological and Scientific Methods, April 12, 1917.



as to the possible psychophysical basis of this activity of the self is offered." Similarly she finds Meumann's 'inner assent', although it adds the necessity for the consciousness that this inner assent is the real cause of the voluntary act, and that without the inner assent the act would not be performed, inadequate. "The inner assent is the symptomatic manifestation of 'an elementary active reaction of the Ego'. Again we are left wholly without any clue as to the physiological process involved." The problem needs something larger, more inclusive, more insistent, and, most of all, something more clearly accounted for in physiological process than the 'determining tendency' merely.

"The fact is that in order for an idea to be accepted as a problem idea, and in consequence to obtain relatively lasting influence upon associative processes, it has in ordinary language to appeal to a need, a desire. All desires are ultimately connected with the great motor outlets of instincts. If we examine introspectively what happens when an idea arouses a desire that cannot immediately be gratified, we find, I think, that motor effects of either or both of two different kinds are produced. The one effect (not necessarily first in time) is that we 'feel restless', 'uneasy'. The restlessness seems to be produced by diffused and shifting motor innervations, which apparently have no useful connection with each other, and seem rather to be the effect of a common cause than to form a true movement system. The other effect that may be connected with the arousal of desire I shall call the activity attitude. In its intenser degrees it is revealed to introspection as the 'feeling of effort', which is recognized as the accompaniment of active attention. Introspection further indi-





cates that it is not due to shifting innervations, but rather to a steady and persistent set of innervations. It appears from introspection, also, to be in its intenser forms a bodily attitude, involving a kind of tense quietness, a quietness due not to relaxation but to a system of static innervations. We should then class it under the head of 'static movement systems'.

"The writer would like to suggest that a problem idea becomes the starting-point of effective and directed thought towards its solution only when the incipient motor innervation which the problem involves connects itself, not simply with general restlessness and uneasiness, but with the steady innervations of the activity attitude. Through their inherent and characteristic persistence, as members of a static movement system, the problem innervation is kept from lapsing and may continue to exert an influence upon associated motor innervations and to arouse imagery which bears on its solution.

"We must indeed if such a view be accepted, go a step beyond introspection. The 'feeling of effort', the form in which the activity attitude reveals itself most clearly to introspection, is connected not with smooth and easy thinking but with interruptions and obstacles to the course of thought. If such obstacles are insurmountable, the activity attitude either resolves itself into the shifting movements of restless desire, or drops into an attitude of relaxation. But if the obstacle is successfully surmounted, the activity attitude, we must suppose, does not cease because it is less evident to introspection, but is most effective in securing the persistent influence of the Aufgabe when the kinesthetic sensations to which the activity attitude itself gives



rise are not themselves the objects of attention. In fact just in proportion as it is evident to introspection, that is, attended to for its own sake, it is less effective in securing the persistence of the problem system. Is this only another way of saying that thinking implies active attention and that active attention is characterized by the presence of the consciousness of effort, or the feeling of activity? Yes but it is saying more: namely that the motor innervations underlying the 'consciousness of effort' are not mere accompaniments of directed thought, but an essential part of the cause of directed thought. It is the static, mutually reinforcing innervations of all organized movement system which, associating themselves with the incipient innervation set up in connection with the problem idea, keep that excitation effective and prevent it from lapsing. What is required to transform an idea into a problem idea or Aufgabe is the association of the incipient motor excitation which it involves with some excitation relatively static and enduring in its nature. And a determining tendency is an associative disposition one of whose exciting influences is the activity attitude."

This theory of physiological basis for problem and its persistent effort, though too fragmentarily sketched, is adopted for its objectiveness in proposing plausible correlates of mental processes. This for a practical purpose. What it may be worth where children as learners are closely dependent upon constant suggestion and encouragement from teachers is a question not broached. What part it may play in the interpretation of the motives of cooperative social action is equally left out of consideration. Its pertinence here claimed is to the kind of think-





ing which implies the continuity which we call personal. That continuity is expressed by problem moving toward solution. Such problem may not be conceived as problem without persistence and progressive solution. The essence of such continuity seems to me to be a 'proprium', a quality which makes the issue one's own. Its persistence and development may not be conceived in abstraction from the activities of a person called a thinker. We seem simply to have taken account of such person's equipment for thinking when we identify physiological mechanism which may be available for holding, carrying and trying to solve the problem — which is thinking.

We have seen that learning to think implies apperception of an increasingly higher degree as one proceeds. The following tabular conspectus of the most important facts underlying the three sections of this chapter must not be taken too strictly. It is rather because we are interested here in a phase of higher education than because any strict lines can be drawn between periods that we roughly list characteristics of elementary, secondary and higher education. In fact, because we are interested in the progression of apperceptive types rather than in periods with definite delimitations in which the types shown might be supposed to be exclusively characteristic, the terms 'earlier', 'middle' and 'higher' are used. The main purpose is to exhibit the



## TYPES OF APPERCEPTION OF THE INDIVIDUAL-PROJECT PERIOD

## COGNITIVE ASPECTS

<u>Earlier</u>	<u>Middle</u>	<u>Higher</u>
Natural environment	Social environment	Individual environment
Instinctive, low degree systems	Social project-systems	"Professional," high-degree systems
Natural interest systems	Human-interest systems	Individual special systems
Plays, games, tasks	Group-social projects	Individual, intellectual, projects
Beginnings of thinking	Thinking in conformity	Independent thinking
Curiosity-problems	Human-interest problems	Scientific problems
General (instinctive) contexts	Social-human contexts	Professional contexts
Unconscious self	'Socius' self	'Self as a 'system'
Existence-margins	Human margins	Knowledge-margins
Non-conceptive	Growing concepts (human needs)	Concepts as 'systems'
Perceiving growing into conceiving for life's sake	Conceiving as general mental efficiency	Concepts used as 'systems' for special knowing
Utter credulity	"Folk-ways" and "moxes"	Convictions
Experience slight (instinct instead)	Experience humanly greatly increased and used for social learning	Experience increased and assorted: condensed and condensing
Meanings in "accidental" situations	Meanings determined by human associations	Meanings resulting from <u>intentional situations</u>
Little discovery in method to improve practice (p.170) <sup>1</sup>	Haphazard discovery in method to improve practice	Much intention to improve method
Focal mental processes many		Focal processes few: vivid
Not strongly protected by inhibitions		Strong inhibitory protection
Thought goes on in active attention (like recollection, constructive imagination, selective and voluntary action)		"Not needed," and is rarely undertaken. Persons think only on the level <u>required</u> . Only a few persons <u>think</u> , as few <u>imagine</u> and <u>act sagaciously</u> (pp.261ff.)

<sup>1</sup>Page references to Titchener, A Beginner's Psychology.





## AFFECTIVE ASPECTS

Pseudo-social Living Selfish emotions	Genuine social Human life Altruistic feelings	Supra-social Individual life Scientific disinterest- edness
Much feeling and sensation (with primary, shifting at)	Much feeling and sens- ation, more organized (sec. at.)	Little feeling or sens- ation (derived prim- ary attention)
Instinctive de- termining ten- dencies pre- dominate		Acquired determining tendencies of intellect- ual kind.
Feelings not in- tellectual in their connection		Intellectual feelings
Not organic exper- ience for their basis (p. 217)		Rich organic experience for basis of in- tellectual feelings Hope and relief in problem

## ACTIVE ASPECTS

Least resistance Instinctive (in- dividual-social) attitude	Effort (push-pull) Conventional-social attitude	Strain (hold) Individual-purpose attitude
Restless spirits	Generally directed action	"Studying type", activ- ity only incidental
Unsolicited will (not subor- dinating lower to higher)	"Morally solicit- ed will" (Subor- dinating to moral, i.e. customary, tribal, social-liv- ing purposes)	Purpose-directed will (Subordinating to systems integrated on an intellectual purpose).
Animal activity- attitude (mere activity)	Restraint of undi- rected activity	"Activity attitude" definitely directed; held by, 'tentative move- ments'
Use of motor proce- sses to pro- tect	Use of motor pro- cesses to "value"	Use of motor processes to condense, concen- trate.
Random movement	Directed movement	Vicarious movement
Inhibitions slight, instinct- ive	Inhibitions con- ventional	Inhibitions definitely determined by 'sit- uations'
Reinforcements do. slight, instinct- ive	Reinforcements do. conventional	Reinforcements due to specific determin- ing tendencies
Associations with- out intention	Associations from general situations	Associations intended



Association brings its 'situation' with it	<u>May</u> not be 'situational'	Intentional, purposive
Biological accidental 'set'	Human-accidental 'set'	Determining tendency
Associative and determining tendencies weak	Associative and determining tendencies strengthening in real situations	Associative and determining tendencies v subject to concentrating effectiveness
'Suggestions' appealing to 'determining tendencies' <u>rare</u> : hence connections on the same plane. Organisms cannot lead or follow, choose or reject, work or play: not suggestible		'Suggestions' rich, hence 'determining tendencies' abundant, widely a <u>chooser</u> . Planes of connections. 'Systems' (pp. 212, 24)
"Weak will", at mercy of every fresh suggestion	Progress in balancing the forces	"Strong will" - tendencies deep-seated and persistent
<u>Sense-feelings</u> largely on the determinants of action (p. 255).	<u>Wishes and desires</u> characteristic. Higher than sense-feelings	Wishes and desires with ideas and determining tendencies (direction)
Small range of experience gives small possibility of conflict of determining tendencies: also chance for little habit of dominance by a significant determining tendency		Wide experience gives many chances to <u>grade</u> interests, hence to find determining tendency which may dominate for some good reason. (Deliberate project does this in an orderly, purposeful fashion). Well wrought and persistent project cultivates the habit of dominance by a rationally consistent determining tendency.
Contexts of actions <u>simple</u> and <u>few</u> - little decay of impulsive movements		Contexts of movements <u>many, complex, subtly determined</u> . Much <u>decay</u> of movement contexts.
<u>Simple</u> contexts of sensory-motor or ideo-motor "typical actions"		Contexts complex by enrichment of 'situations' from extended experience. Many variations enrich possibilities in suggestions





Much absorption  
with impulsive  
acts  
Many unequivocal-  
ly determined  
acts

Practice

Guess after guess  
(on a riddle)  
trial and error-  
animal and  
child - let the  
impulse that  
happens try!

Balance of impulses.  
Free ideas necessary  
to select. Doubt,  
hesitation, select-  
ive attention,  
choose.

Habits not yet af-  
fected by phys-  
iological  
changes (like  
getting strong-  
er) during prac-  
tice

Habits now requir-  
ing attention

Habits may be formed  
by a "wrench," in  
this plastic stage

Habit may stand less  
in the way of  
practice

Fatigue lowers the  
level and lessens  
the duration of  
attention. Less in-  
telligent guard  
against fatigue

Much freedom from  
absorption with im-  
pulsive acts

Much conflict of im-  
pulsive tendencies  
- selection necess-  
ary. (One learns to  
settle disputes of  
conflicting ten-  
dencies)

'Volitional' activity  
proper. Activity and  
passivity in con-  
flict. An idea  
opposes an impulse.  
Reinforcement im-  
plies inhibition  
and vice versa.  
"Every suggestion  
is two-faced."

Habit is affected by  
certain physiologi-  
cal changes which  
affect practice

Habits now to be used  
(basis of new ac-  
quisitions)

Habits not so easily,  
but more intelligent-  
ly, formed

Habit may be con-  
sciously avoided in  
the interest of  
practice

Knowledge of effects  
of fatigue on  
practice may regu-  
late it.



PART III  
PRINCIPLES OF COLLEGIATE EDUCATION

CHAPTER X

SCRUTINY OF THE PRINCIPLES

General Survey

We have given attention at some length to the general applicability of Dewey's philosophy of education, now first available as a system, to that aspect of collegiate education which is our especial interest. Our ultimate problem is to formulate some of the working principles of collegiate instruction, which we have already interpreted to be primarily principles of later adolescent learning. We have further narrowed the scope of our inquiry to include only the purposes of a cultural, or non-vocational, college, that is, a college which deliberately proposes to extend the liberal outlook of those who may profitably choose to broaden their intellectual foundations rather than build a professional superstructure immediately. We have already uttered the initial caution that such a proposal specializes our purpose, and consequently demands a choice of persons adapted to such a specialization. We have attempted to justify a doctrine of 'project' as the most important application, in such an institution, of the form which the work of collegiate students in problem-thinking ought to take. For this purpose we have studied the psychology and pedagogy of problem and project, and have still to show some of the more intimate connections of theory and practice. There then remains the statement of the principles derived, and suggestion of general precepts believed to be justified.





We have prepared then, for the conclusion that we may formulate principles and state the corresponding precepts of procedure, tentatively to be sure, but with such finality as the philosophy chosen as hypothesis argues for a structure of practice, further guarded and corrected by an appeal to psychology and other sciences where pertinent as the corrective cautions they must be. Our purpose is primarily practical, the philosophy is confessedly pragmatic; fidelity to such a philosophy permits us to submit it constantly to test of its validity for practise's sake, but permits us also to bank upon the assumptions we make until they answer to test and yield accepted principles of action. In the nature of the case, the reason for presenting the philosophy first and noting its general application to our problem as we went along justifies finally as sequent procedure the test, especially by psychology, of the principles which our philosophy seems to warrant as in laying down.

Now when we turn from the philosophy which makes it a natural part of its business to find and state principles of practice, to a testing use of sciences like psychology, we must recognize principles of attitude which science, as contrasted with philosophy, declares its right to take. If the main purpose of philosophy is fairly represented by what we may call an interested attitude, an attitude best represented, perhaps, by the consideration of values, over against this we must approach science as having a purely disinterested point of view, active only in the pursuit of faithful description, though engaging, at least for its own purposes, often, also in explanation of phenomena. It makes hypotheses to be sure but rather in the interest of completer description than



even more elaborate explanation: strictly speaking not at all in the interest of working principles. But the hypotheses science makes for its purely descriptive and measurably explanatory purposes may serve a plausible philosophy none the less for its practical purposes, which are, of course, to test and validate its working principles. To be concrete, psychology is so carefully defined by some of its best students as to include only a description of its processes. Mental processes suffer painstaking analysis under introspective observation, and synthesis is but a reciprocal proof, as it were, of the accuracy of the analysis. Nervous mechanism is known to be a correlated chain of phenomena. In fact there is no objection to saying that mental phenomena are the function of the nervous system, but the science of neurology is left to describe its own phenomena. This vigor of definition of science consistently aims to place psychology in no sort of possibility of a partizan attitude toward any practice or science of practice. It is merely indifferent to "applications" of any sort. But nothing forbids the use of its facts by any one who is competent to try them for their fitness as regulative of principles of practice. In fact we are speaking only of the most extreme position of the psychologist, that of the psychologist whose theory or hypothesis is laid only in pursuit of adequate descriptions. Fortunately for pedagogy and other practices clamoring for scientific basis, not all psychologists have failed to elaborate theories which aim to rationalize the individual facts as discovered by observation into a coherent scheme of relationships with themselves through conformity to relation with equally coherent neurological theory. A chief part of the service, which may be rendered by the scientist who is willing





to theorize his science, to the person who wants its facts and their bearing, but who is not himself able to practice its observations, much less to elaborate their explanation, is the service rendered by a theoretical schematization. A test of our competence to use such a theory must lie first of all in our realization of the fact that it is a hypothetical scheme, secondly in our realization that it primarily belongs to the psychologist who thus makes an approach to explanation of his phenomena, and thirdly in our realization that its availability for our purposes must depend upon its acceptability for psychology's purposes, and that there are cautions still to be exercised in using a theory intended for explanation as a theory for the regulation of practice.

A class of phenomena which psychology may decline to use for its purposes, while philosophy and practice have no data without them, will serve to illustrate the difference in point of view and in respective problem. The only interest psychology may have in 'meaning', for example, is in noting that it is not mental process and in consequently relegating it to the field of logic. Though psychological experiment may exercise meaning, the datum it has thus set aside remains for psycho-neurological theory a phenomenon by itself candidate for elaborate schematic representation, but for logic and other practical sciences still remains after that a phenomenon for an entirely different sort of observational and experimental treatment. What meaning remains, or is, for the practical sciences of logic and pedagogy is set forth as follows in Dewey's Philosophy of Education. The context from which we quote itself means much more than we are using the passage to illustrate. Psychology, in other words, means much to the philosopher, (as our



drawing upon it implies) although the psychologist's vigor of definition of his own field makes philosophy no part of his scientific interest. Witness the philosopher's presumption in making a definition for his purposes which diametrically opposes that of the psychologist, who probably must be allowed the prior right to define this term: "The difference between an adjustment to a physical stimulus and a mental act is that the latter involves response to a thing in its meaning: the former does not." The important distinction is that philosophy, as Dewey uses the term, as a practical science has every use for 'meaning' where psychology may discard meaning from consideration. Further justice must be done to the use made in this context of 'meaning', that it is not only the differentia of a 'mental act' properly so called, but that it is the differentia of the social learning which distinguishes 'education' from 'training'. To quote (p.38):

"It will be recalled that our main proposition had two sides. One of them has now been dealt with: namely that physical things do not influence mind (or form ideas and beliefs) except as they are implicated in action for prospective consequences. The other point is persons modify one another's dispositions only through the special use they make of physical conditions. Consider first the case of so called expressive movements to which others are sensitive: blushing, smiling, frowning, clenching of fists, natural gestures of all kinds. In themselves, these are not expressive. They are organic parts of a person's attitude. One does not blush to show modesty or embarrassment to others, but because the capillary circulation alters in response to stimuli. But others use the blush, or a slightly perceptible tightening of the muscles of a





person with whom they are associated, as a sign of the state in which that person finds himself and as an indication of what course to pursue. The frown signifies an imminent rebuke for which one must prepare, or an uncertainty and hesitation which one must, if possible, remove by saying or doing something to restore confidence.

"...Mind as a concrete thing is precisely the power to understand things in terms of the use made of them;..."

The purpose of this quotation at this point is to indicate the justification for definitions in terms of point of view and purpose, either in science or practical pursuit. All that is further demanded is consistency in the use of definitions in their respective fields. It is in the nature of the respective points of view and purposes of practical disciplines like logic, ethics and philosophy in Dewey's sense on the one hand, and of psychology as defined by Titchener on the other hand that in the former group we should find principles of pedagogy, while the science of psychology should be appealed to as directive and corrective. Dewey's philosophy is eminently practical in essence and purpose. As such it constantly deals with values. Its own value, it is fair to expect, is practical. The tests of its value may well be practical. It is itself hypothesis of the problems of education as practice. It may be set dogmatically at the outset in any such problem and held to the proof made by the test of application. In so testing it we act in accordance with its fundamental principles. Science administers no actual precepts. In the sense in which we adopt the term philosophy, it consists primarily of such precepts.

Professor Margaret F. Washburn, of Vassar College, has elab-



orated the theory we have seen of description and explanation in psychology in which mental processes are very plausibly treated as the correlates of movements in the nervous system. All the main types of mental process are treated and expressed in terms of a scheme of movement complexes represented as actually taking place. Many of these grow up logically out of others and the whole scheme hangs together in such a way as to involve some knowledge of the whole scheme to understand its application to a set of movements. But our hypothesis is that thinking is not only not a process that can be isolated from other mental activity, nor be thought of as absent from most of the other mental phenomena, but that its characteristic activity is sufficiently that of maturity to make it the central issue in collegiate education. On this assurance, or even upon this hypothesis, the logic and psychology of thinking become of immediate moment to the consideration of a pedagogy whose main purpose is to foster thinking. As our first purpose was, then, to adopt a philosophy according to which to find the precepts of collegiate education, our second was to attempt a knowledge of the processes which must be known to understand thinking, in order to state, in the third place, at least so many of the collegiate precepts as pertain directly to the cultivation of thinking.

But when we deal with thinking the above order is not merely an order of procedure, but structural in the order of sciences and hence logically necessary. In discussing structural levels Professor Brown says: "Our place in nature suggests that the study of individuals as restricted by participation in group entities may be vastly more important than the study of groups themselves,





that is, the materials for the explanation of the group laws may be at least as important as the laws of the groups that are explained....

"...Rationality of conduct implies a new study in which ideas as ideals furnish the subject matter."<sup>1</sup> We do not at first take the philosophical, ethical, pedagogical point of view, though that is our ultimate purpose. Rather, as here we take the psychological and logical, even with some study of their underlying sciences. Afterward we may take the pedagogical ('normative') point of view, and try to state its precepts, which are forward looking, ethical, deal with aspects of ideal and motive; we may study the prospects of improving the actual conduct of thinking.

Thinking, then, a characteristic human activity has the several aspects indicating avenues of approach. It is psychologically, according to some an activity based upon an elemental thought process, but this is open to much theoretical and experimental objection and is of secondary interest only to our purposes. At any rate thinking is an important chapter in psychology subject to endless observational and experimental study. Logic devotes itself largely to the regimentation or proof of thinking, and the philosophy we adopt finds thinking the central activity of individual development and even makes it one of the chief agencies causally operative in the human stage of evolution; attaches thinking so inextricably to the train of activities which work out cosmic purposes that it is not only the object of logic as a study, but only another name for ethics and theory of education. It constitutes

<sup>1</sup>Brown, H.C., Structural Levels in the Scientists' World. Journal of Philos., Psychol., and Scientific Methods, June 22, 1916, p.344.



then, not only the theme of Professor Dewey's Philosophy of Education but the subject of a logico-pedagogical work on "How We Think." These offer themselves for our purposes, not to traverse the same ground in any way except where such survey of a part of their area is necessary to establish the precepts that pertain to the perfection of the learning process in college. We find in other words in the psychology and logic of thinking the facts about thinking which urge the precepts to be observed in securing adequate thinking, that is, in its pedagogy.

The force of logic as what I have called the regimentation of thinking, or the science of the practice of "good" thinking is expressed in a delimitation of the term adopted by Professor Dewey. This quotation serves also to declare the pragmatism of his doctrine of thinking. In the broadest senses "logic" deals with any thinking, in the narrowest sense only of the stringently proved, but: "Logical, however, is used in a third sense which is at once more vital and more practical; to denote namely, the systematic care, negative and positive taken to safeguard reflection so that it may yield the best results under the given conditions. If only the word artificial were associated with the idea of art or expert skill gained through voluntary apprenticeship (instead of suggesting the factitious and unreal), we might say that logical refers to artificial thought."

"In this sense, the word logical is synonymous with wide-awake, thorough, and careful reflection — thought in its best sense." Which, in another connection, he says "is that which considers the basis and consequences of belief."..."The consequences of belief upon other beliefs and upon behavior may be so important, then,





that men are forced to consider the grounds or reasons of their belief and its logical consequences. This means reflective thought — thought in its eulogistic and emphatic sense....Active persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends, constitutes reflective thought." The central factor of reflective thinking is that it brings evidence as ground of belief. But these are "the more external and obvious aspects of the fact called thinking!" "Certain subprocesses are involved in every reflective operation."

"These are (a) a state of perplexity, hesitation, doubt; and (b) an act of search or investigation directed toward bringing to light further facts which serve to corroborate or to nullify the suggested belief." This state of doubt with all that it means as attitude for thinking is now a common-place of pedagogy as "problem." It is not a product of logical deduction but an object of direct psychological observation. The Aufgabe, or "determining tendency," the "set" of the mind toward the perplexing element in what is about to be is, though of recent development, now a common-place of psychology. These are "simple elements," as it were of thinking as an activity: (a) the challenge (b) the search. Without challenge, obstruction to play of fancy, forked roads, alternatives, occasion for pause to choose, there is no reflective thinking. Acceptance of the challenge, attempt to answer it, "sets up an end and holds the current of ideas to a definite channel. Every suggested conclusion is tested by its reference to this regulating end, by its pertinence to the problem in hand.... Demand for the solution of a perplexity is the steadying and guid-



ing factor in the entire process of reflection."..."The problem fixes the end of thought and the end controls the process of thinking."

Much of Dewey's "How We Think" would serve the college student (for he is old enough to use it) as a hand-book of invaluable information upon his calling as a student i.e. a thinker, but that the college student is not ready to use it is part of the excuse for enlisting its help toward stating the precepts of college study. The rest of the reason is that we are not yet ready to begin with the student, though he needs the help, but are taking for granted the teacher's need, the teacher's professional interest in the teaching enterprise as his, and his readiness, rather than the student's, to make a close study of the principles of collegiate study. Following the chapter "What is Thought," come "The Need for Training Thought," "Natural Resources in the Training of Thought," "School Conditions and the Training of Thought," "Means and End of Mental Training: the Psychological and the Logical." Part two deals with "Logical Considerations" and Part three with "The Training of Thought."

In further pursuit of the factors of problem we find under the discussion of Discipline and Freedom, a statement of the inevitability of problem in correct method. "Any mind is disciplined in a subject in which independent intellectual initiative and control have been achieved. Discipline represents original native endowment turned, through gradual exercise, into effective power....Discipline is positive and constructive...Conceived in intellectual terms... as the habitual power of effective mental attack, it is identified with freedom in its true sense....independent exercise...not mere





unhindered external operation....Not casual discharge of transitory impulses...a multitude of stimuli keeping up...spontaneous activity. ...Direct immediate discharge or expression of an impulsive tendency is fatal to thinking. Only when the impulse is checked and thrown back upon itself does reflection ensue." But "search for artificial or external problems is superfluous...for "every vital activity of any depth and range inevitably meets obstacles in the course of its effort to realize itself....The difficulties that present themselves within the development of an experience are, however, to be cherished by the educator, not minimized, for they are the natural stimuli to reflective inquiry. Freedom does not consist in keeping up uninterrupted and unimpeded external activity, but is something achieved through conquering, by personal reflection, a way out of the difficulties that prevent an immediate overflow and a spontaneous success."..."To cultivate unhindered unreflective external activity is to foster enslavement, for it leaves the person at the mercy of appetite, sense and circumstance." These passages introduce the general platform of problem-attitude, which is more fully described in the psychology than in the logic of problem.

Further, in "The Analysis of a Complete Act of Thought," chapter six, the common elements found in all types of thinking show "five logically distinct steps: (1) a felt difficulty; (2) its location and definition; (3) suggestion of possible solution; (4) development by reasoning of the bearings of the suggestion; (5) further observation and experiment leading to its acceptance or rejection; that is, the conclusion of belief or disbelief....The difficulty resides in the conflict between conditions at hand and



a desired and intended result, between an end and the means for reaching it....The object of thinking is to introduce congruity between the two....The problem is the discovery of intervening terms which when inserted between the remote end and the given means will harmonize them with each other."..."The essence of critical thinking is suspended judgment: and the essence of this suspense is inquiry to determine the nature of the problem before proceeding to attempts at its solution." "The suggested conclusion [point 3] so far as it is not accepted but only tentatively entertained constitutes an idea. Synonyms for this are supposition, conjecture, guess, hypothesis and (in elaborate cases) theory." [Point 4] "As an idea is inferred from given facts, so reasoning sets out from an idea....Reasoning has the same effect upon a suggested solution as more intimate and extensive observation has upon the original problem." In the fifth place, "Conditions are deliberately arranged in accord with the requirements of an idea or hypothesis to see if the results theoretically indicated by the idea actually occur....Thinking comes between observations at the beginning and at the end."

"...The trained mind is the one that best grasps the degree of observation, forming of ideas, reasoning and experimental testing required in any special case, and that profits the most, in future thinking, by mistakes made in the past. What is important is that the mind should be sensitive to problems and skilled in methods of attack and solution."

The chapters which follow in How We Think, treat the technique of inference and the logic of judgment and understanding.

Turning to the Philosophy of Education, the treatment of think-





ing emphasizes constantly the one paramount fact of its essentially active character, which is enough in itself when understood to revolutionize student attitude toward collegiate work. It is our main purpose to so scrutinize this dogma, as to test its pertinence by trying to understand what method must do to satisfy the requirements for initiative in thinking, the performance which satisfies the rules of thinking by actual pursuit of the stages of problem-solution. It may easily be seen to be vain to repeat the truism that thinking must be one's own, that problems must be one's own, that the characteristic attitude of thinking may not be secured by exhortation, that the attitude is one of active attack by the thinker, that he must be in a state of suspense, which is the state from which reflection will proceed to solve problem, that he must have his own reason for engaging in the activity which alone can solve problem, unless a proposal is made for method of attack which shall in its nature imply the activity of the thinker. That such proposal argues in general a method of research, an "inquiring to which acquiring shall be secondary" goes without saying but now often goes no further than the saying. The assumed prerogative of the graduate students to monopolize 'the method of research' is bound to be questioned in test of the assertion that "all thinking is research, and all research is native, original, with him who carries it on, even if everybody else in the world already is sure of what he is still looking for."

We are interested then in what problem means to the psychologist, and what it may, finally, mean as the key to collegiate general method; and we may, at this point, so far take it for granted as the center of pedagogical interest as to state our specific



thesis. It is that to secure 'problem' in the student as contrasted with the problem of any teacher — whether of subject matter and its organization, didactic or instructional method, acquaintance with students and their knowledge and preparation to do the work implied, or whatever a teacher's problems may be — separate attention must first be given to the student, who is to be taught to think; that such attention must be the first and most important business of the collegiate teacher, no matter what other problems he has; and that (this is the main hypothesis) the demand that the student shall conceive problem as the initial necessity for significance in his work implies organization or method on that basis primarily; that such organization of method requires a presumption of what may be called 'project' as the normal method of student-procedure. There follows then the task of stating the character of 'project' somewhat in detail as a way to work which shall satisfy the demand for problem from the student's point of view.

### The Educative Coherency of Project

The problem of collegiate education as limited for our purposes may now be stated in terms of 'project', and the remaining solution of the problem be allowed to rest in an adequate exposition of project. The educative coherency of 'project' as we use the term for our narrowed purposes may be expected to depend upon its definition as individual project. The collegiate educational problem, as individual, yields the project which represents the way in which the individual's world of knowledge grows. Two worlds only need be conceived, that of science as also a growing world, the product of coöperation, but not essentially social or a party-product, simply





not personal, to use a rough distinction between it and the individual's world. It is only the world of the individual's growing experience that may be said to have educative significance. The intent of the graduate student's specialized 'project' is declared to be a "contribution" to science and a primary interest in the student's education is nominally, at least, waived—certainly sufficiently so to exclude such 'project' from the classification sought for the undergraduate's educative project. On the other side most other uses, colloquial or technical, are as easily excluded. Project as applied to a coöperative enterprise, large or small, is in its essence differentiated at once. The "government project" is typically one that is so far from being educative, that it is even characterized as being one that in its nature, for its efficiency, "ties individual initiative to a typewriter with red-tape." A use of the term in school, however, with which our use will not become confused, is of the constructive coöperative project in which modern methods of machine-industry are exemplified in the division of labor of a group of pupils. An individual's part in such an enterprise might suffer ideal organization into his project in our sense, and thus exemplify genuine social aspect of project, but for our purposes such a use of the term is only measurably relevant. Our project is better illustrated by the project in physics or by the individual's project in elementary agriculture, with the advantage to its type of much opportunity for concreteness and action, but with the educational lack, for our purposes, of articulation to a "world" of thinking which it must amplify greatly, and a lack of unhampered facility in opening up that world and expanding it on any appropriate side. All degrees of educative possibilities may be



conceived as overlapping and reciprocating with practical uses more-or-less apart from educative purposes. In fact it always depends upon teaching-power as to whether any project shall contribute more than an incidental educative result.

### Project as an Assimilative Measure

Courses in special subjects are organized on the basis of specialism. Their pursuit by the student of liberal collegiate purpose is partial in its result, therefore. The specialism which gives us such courses is pedagogically subject to criticism in the liberal college. It is subject to criticism even from the teacher's point of view; more so from the student's point of view. Their salvation from miscarriage is in the sagacity with which the actual student's point of view is realized and protected. This depends primarily upon the use of project, or some other device which will necessitate the normal student's point of view, and upon such device as an assimilative measure — an organ of student-adaptation.

It is in the nature of project to adapt the course, which has been organized to satisfy the logic of a science, to the learning uses of an individual. It is in the nature of project, following the lines of the individual's normally "unscientific" experience as it has been, to keep the lines open which connect things "phenomenally" instead of separating them "scientifically." It must not be unscientific but if it honestly starts with experience, it begins only with such analyses as experience is ready for. That is to say, the method of project is assimilative rather than disjunctive, the method of actual phenomenon rather than of laboratory.





In an experience, irrelevant conditions have not yet been removed for experiment's sake. Phenomena are natural, not artificial. Several departments of "science" are embraced in one phenomenon, not segregated into their respective sciences. Such is our uninstructed or partially-instructed experience, and except for the specialist, it largely remains the typical experience even of the educated person. He is not educated to the laboratory but, for his purposes, through it. Now project is his way through. Project keeps his best foot out of the laboratory to keep him in the presence of phenomena which the laboratory only helps to make intelligible to him. For him project is the safety-valve of method, if nothing more. It is the corrective in method which gives the course to him instead of giving him to the course. Too many college students are as badly lost in a course as an earthworm that has failed to keep one end of himself in the mouth of his burrow!

This means that project is not ideally conceived of as a perfected laboratory exercise in which analysis departs, for the isolation of principles, constantly farther from the synthesis of heterogeneous conditions which make up most situations as they are in life. Analysis-synthesis is a reciprocal process both in nature and in experiment-proof, but unanalyzed situations are the kind experience furnishes us. Now the course may be depended upon to dissect, to analyze and exhibit principles. It is tempted to sleights of skill to get things rapidly onto the slide where they may be beautifully exhibited. Its corrective for the individual student is the project. The only educative use for the slide and the principle for him is as culmination of experiential process of his own in which analysis has been mildly made by himself and principle has been seen



at work, as now the demonstration exhibits it more completely made. In this sense of project, Dewey's chapter twenty-two, The Individual and the World, is the philosophy of project. The philosophy of project, as we are using the term, is the philosophy of the individual student's collegiate work.

Men whose own work, sometimes the only subject upon which they make public speech, falsifies the utterance, say to college students: "You will forget in two years all you learned in college." This is utterly untrue or an astounding comment upon the thinking done or not done in college. If it is true in any sense it puts collegiate learning in a class by itself which stamps it with imbecility. It is not true of similarly extensive experience of normal human beings under any other known circumstances. If it is true that a person can take a collegiate course in physics, for example, without providing himself with knowledge by which he may read intelligently studies in physics in scientific papers, something must have operated in an extraordinary way to prevent the normal development of his experience. An article in Science on some of the discoveries of Pasteur, undertaken at a stage where its interpretation would be a genuine problem to one, chosen by a student just to understand, would be a good example of a simple project, if used to vitalize the student's approach to serious study of the science involved. Set as a problem thirty years after, one's power of interpretation would probably show the absurdity of the remark quoted. So great is the disrepute in which pedagogy is held in some quarters, that men otherwise reliable will jeopardize their reputation for a mere chance to controvert axioms. If there is any truth in the expectation that college courses will go "into one ear and out the





other," the mere suspicion of it can demand no less than that we investigate the relation between a teacher's purpose in a course and his conception of his students' purposes with reference to it. If they may not be truly conceived as identical, a tenable doctrine of the student's point of view is at least demanded. The teacher and his course may come after. Though the teacher may have his own projects, germane to his relation to the course or to his own studies, project, as we employ the term, is limited to its use to characterize the manner in which the student makes his way into the knowledge which has been organized by the teacher into the course.

#### Students' Projects the Test and Proof of a Course

Granting the legitimacy of the teacher's task of presenting a course in a science, the implication of project is the implication of the student's problems duly subordinated to that prime purpose of his own also, to pursue such a course. The very tests and proof, then, of the propriety of giving and taking such a course will be in the manifold ways in which projects may be related to the course. Any human learner is manifesting a number of instincts which scarcely characterize in themselves anything extraordinary. The human world is as full of learning as of any activity we know. But the collegiate student is engaged in a unique pursuit - the business of making that learning as perfect as human ingenuity can render it. If what happens under such conditions - adulthood, (nearly), self-choice, self-purpose - yields an indifferent result, many reasons are at least conjecturable, but failure of teacher and student to "connect" may be safely picked as the most plausible, and the reason for this fail-



ure may well be expected to lie somewhere in the region of imperfect apprehension of the possibilities of "a course" as their common ground. How it may be their "common ground" without being their "meeting place" is exemplified often enough to demand some attention.

The teacher's purpose in a course may be taken for granted, but that a student shall have any purpose fit to be listed as such is by no means assured without the most careful prevision. Until there is at least some legitimate purpose, the course is in no adequate sense to be regarded as belonging to the student. It is, as is often taken for granted, "Such-and-such a teacher's course." Purposes may neither be taken for granted nor be despaired of. We dogmatize safely as to their necessity, but we are no longer left altogether in the dark by the psychologists as to what purposes are nor as to how they functionate, and we have given some attention to the psychology and pedagogy of purpose as preliminary to a more intimate study of the collegiate pedagogy of purpose.

A purpose precedes a problem or brings one or more in its train. We may diagnose for purpose and in time be able to prescribe. If a student finds himself in the attitude of "spectator" rather than "agent" in a course even he himself may know something is wrong. He has no occasion to aim until he is filled with a purpose to hit the mark. He has no aim until, as Dewey says "an activity has become intelligent." The course is no real part of his purpose until it is "made a factor in determining present observation and choice of ways of acting." "A true aim is opposed at every point to an aim which is imposed upon a process of action from without. The latter is fixed and rigid: it is not a





stimulus to intelligence in the given situation but is an externally dictated order to do such and such things. Instead of connecting directly with present activities it is remote, divorced from the means by which it is to be reached. Instead of suggesting a freer and better balanced activity, it is a limit set to activity."



CHAPTER XI  
THE PRECEPTS OF PROJECT  
Summary of Principles

1. Collegiate teaching may be shown to have an institutional integrity, if we differentiate types of college according to educational purposes.

2. The integrity of cultural collegiate teaching is in its devotion to subject matter and method appropriate to the purpose of integrating one's individual growth outside of the requirements of social adjustment, hence of common elements, hence, of the social conventions which make the curriculum of 'constants'. It is equally distinguished from the claims of vocational training, except as they subordinate themselves to its cultural purposes.

3. Collegiate teaching is that which is appropriate to the period of an individual's growth when he may build up the structure of individual thinking in which studious pursuit of liberalizing problems has been prepared for by adequate exploratory experience. It is in the school which makes students by cultivating the genuine arts of the student. It may use vocation, but is more properly, while it lasts, the actual pursuit of the 'calling' of student. It is less preparatory than parallel to vocational study. It should be the highest education, strictly as education.

4. It is liberal<sup>1</sup> in every sense implied by that term, when it has itself been freed from the historic implications or classes not free. A perfect ideal of democracy could not interfere with the institutional cultivation of collegiate learning. The restraints

<sup>1</sup>Dewey, How We Think, pp. 143-4.





upon universal participation are both such as arise from the inequalities of imperfectly attained democracy, and from human individual differences.

5. Hence the perfection and operation of the institution so devoted are judged to be justified by the discovery of the actual educational function to be performed.<sup>1</sup>

6. The principles of teaching, then, to be explored are such as are appropriate to this stated purpose.

7. Such principles may be suggested by any plausible philosophy of education, or otherwise assumed, to be exploited as hypotheses, until fully tested by any science upon which they may be based.

8. Such principles are constituent elements of the science of collegiate pedagogy. (Rules of procedure which they are found to justify may be called "precepts" of pedagogy).

9. Such principles may all be embraced in the sciences which are fundamental to pedagogy. They constitute science of education because assembled as foundation of the specific art of teaching.

10. When tested by methods approved by the fundamental discipline which yields them, they may be embraced in the science of the art which needs them.

11. Each such principle may be set down, therefore, as hypothesis of the problem which it is, until justified or rejected by the research that tests it.

12. Social integration may be acknowledged to be the evolutionary mode which a sort of involution imposes with the intellectual influence man brings into evolution. But this racial

<sup>1</sup>Dewey, Op.cit., Chapter X, Concrete and Abstract Thinking.



integration, effected by social consistency, involves especially an equally inviolable individual integrity as its counterpart. It is the office of higher, as individuated, education to effect the most perfect possible developmental integrity of the individual. The correlate of the demand for a "wider diffusion of intelligence"<sup>1</sup> is the demand for a higher minimum for the individual willing to advance the type of attainment. Conscious evolution or involution has no other way to set its necessary stakes.

13. A marked incident of the later stage of man's appreciation of evolution was his realization of the value of types of activity as well as types of form. Types of activity best represent the flexibility of either evolution or education. The race is tenacious of types of form, represented humanly by the conservatism of sociality, exemplified in elementary, racial, education. The individual cherishes the possibilities of flexibility of more easily changing activital types. In the individual and his higher education is the possibility of progress. Only higher education which is free from the conserving necessities of profession is available for the strictly educative purposes of individuation. Like the brain, which is the last, highest, most complex, most differentiated mediating organ, farthest removed from the periphery, most mediated by reflex organs, longest circuited, most directive and initiative organ, most differentiated in function, most efficient in integration, greatest economizer of effort, sees ends and sets off economic, instead of wasteful, lines of discharge of energy, so education is the last, highest, most indirect organ of progress.<sup>2</sup> The remoteness of education

<sup>1</sup>Ward, Lester F.

<sup>2</sup>Ward and Sherrington.





from its end is what makes it a late and high process.<sup>1</sup> This integrating, individuating, function is especially the function of higher education.

14. Methods of approach to the problems of collegiate pedagogy include appraisal of the pedagogy of elementary and secondary education as developed, and observation of the phenomena of professional education.

15. The psychology of childhood and adolescence, and especially of learning, may be expected to correct doctrine and contribute principles.

16. Especially may study of the history of the exploitation of imperfect or false doctrines of psychology and pedagogy be expected to shorten the processes of development of collegiate pedagogy.

17. These observations of mistakes may shift emphasis from certain types of theory invoked historically to defend traditional practice, (like the dogma of formal discipline), and save time by discovering aims and the means to accomplish them.

18. Collegiate pedagogy may start, then, with a doctrine of content and intrinsic value as the philosophy of aim.

19. The history of pedagogy has at last produced a readiness for the light which psychology is increasingly able to shed upon the facts connected with learning.

20. Pedagogy is ready to work to the presumption that its prime objective is persons as learners; the intricacy of the problem of learning duly subordinates the art of teaching.

21. This subordination of the art of teaching raises its

<sup>1</sup> Much condensed from unpublished lectures on The Natural History of Education.



dignity and importance by the same token.

22. It is suspected that differences between the problem of teaching collegiate adolescents and elementary pupils, for example, justify the differentiation of principles of collegiate learning and teaching.

23. This may not lead to an assumption that learning, coming-to-know, thinking, is not a unified activity possessing, as well as yielding, continuity.

24. But such continuity does not forbid convenient distinctions in stages of development which give clearness to inquiry. Such distinctions help to define collegiate pedagogy.

25. Such distinction may properly relieve collegiate pedagogy from serious consideration of processes, like sense-training, which are not impossible in its stage but are irrelevant to its purposes.

26. Granted that the learning, which it is the teacher's business to facilitate, is for all practical purposes the intricate process of thinking or coming-to-know (allowed to include becoming skilled, as not a separable thing) pedagogy will involve a philosophy of thinking.

27. By the same process of observation as that which excludes sense-training from serious consideration, collegiate pedagogy may be seen to have the most important aspects of thinking as its field.

28. All the functions of teachers, the teachers themselves, and all instruments and instrumentalities may be evaluated with reference to their facilitation of learning, successful thinking. (This might be fair, even if other values were also to be tested





for).

29. Even who the teacher is, the matter of his own character, the processes of his own knowing, the organization of knowledge which constituted his own education, may all be appraised, for this purpose for which he is not only person, but teacher, in terms of the relationship of all to the teaching.

30. This constitutes a peculiar function, but one which both exacts and compensates. If the teaching is as vital as the learning must be, the very modifiability of the teacher in connection with the teaching-learning is a contribution to, rather than a tax upon, his character. This is typical of the intimacy and difficulty of the teaching-learning process.

31. The philosophy of thinking conspires with psychology to make the attitude of inquiry the most important mode, and its expression in problem the most important characteristic, of method of learning.

32. By definition of problem, the academic college is a problem, because "the elements taken as they stand" are "conflicting."

33. By the methods of modern society, this problem demands an institution and its interpretation. In most senses such an institution is yet to be habilitated.

34. On the platform of these principles the particular principles for such an institution may be stated either as self-evident or as subject to demonstration.

35. The logical order of development of such principles is (1) student (2) pedagogy of college and teachers (3) institution. Or in terms of this study of the principles of colleg-



iate pedagogy:

I. Subject matter of the study is (1) the collegiate student as learner, which develops (2) collegiate pedagogy.

II. Method of the study is that of subjecting certain hypothetical principles of collegiate pedagogy to the tests due them from the underlying sciences in which they belong, to establish their pertinence as such principles of collegiate pedagogy. (These principles might also have been studied as they are exemplified in the practice of good teachers. They are, in fact, at least in part, conceived by observation of practice. The method is, then, theoretical, rather than experimental).

III. A theoretically complete system of principles (axiomatic, empirical, and theoretical) would be a platform for perfected practice. Such practice would be conceivable only as put in force by an institution. An institution implies

IV. Teachers, as the necessary human agencies of conceiving the meaning of subject matter and applying the principles of method to constitute the work of the college.

V. Not additional in the sense of being for any different purpose, but as supplemental for the purpose of forming an institution, is all 'instrumentality' which 'agency' (personal) uses. This embraces (for the sake of completeness added here):

VI. (1) Administrative organization, existing to preserve the conditions of learning, for which exists also (2) teaching organization. (Administrative organization is to make an institution to facilitate maximal efficiency of teaching, for which also teaching organization exists to produce maximal learning efficiency. Learning efficiency is the institutional end).





VII. A complete scheme of collegiate science would include such material instrumentalities as housing and equipment, with their hygiene.

36. The implications of effective learning imply choice of candidates and principles of limitation of numbers. The practice of selection has hitherto been governed by more artificial considerations, but may be shown to be better founded on the observation of pupils in high school with specific reference to the habituation they have shown capacity for which is the necessary preparation for the active-habit development which good collegiate performance will demand.

37. It may be capable of demonstration that the "social sanctions" that hold in less highly selected school populations may be in a measure remitted in the interests of real collegiate purpose. Several considerations may relax the "social" demand. (E.g., necessity for isolation, initiative, self-dependence, responsibility and other qualities may be necessary to the collegiate type of learning.)

38. It may be possible to show that the collegiate age is the time of nascencies essential to individual types of work and learning of just the right degree of immaturity and readiness for responsibility to make "students" instead of "apprentices."

39. The college may exist to cultivate the problematical aspects of scientific living, and may establish habits of thinking which are essential to the mental growth of the persons who are to do advanced thinking.

40. Certain essential qualities of thinking, especially those prominent in the high type of thinking to be cultivated as



collegiate learning demand special study, as for example, the meaning of "problem" in the psychologist's study of thinking (as well as in the logician's study of thinking.)

41. Since collegiate education is to be regarded as an education for individuation, its implications must be scrutinized (sociologically) on the side of a definition of democracy, and the relations of the individuated person to democratic society. This may involve the selection of subject matter for collegiate education for citizenship. Selection of subject matter for this purpose must not violate the prior expectation that it will be adequate to the cultivation of thinking. The presumptions are in favor of method as the conservator of good thinking when "method" is not regarded as something that can be abstracted from genuine content.

42. Collegiate pedagogy will have to reform the notion of mind which has prevailed in unscientific use of the dogma of formal discipline and other partial, or imperfect, or wrong, doctrines based upon imperfect psychologies.

#### Precepts of 'Project'

1. It may never mean the teacher's task of organizing a course, nor his task of instruction; connected with either of which, however, teacher's projects are conceivable.

2. Granting the legitimacy of the teacher's task of presenting a course in a science, a general definition of project implies a problem of the student strictly subordinated to that prime purpose of his own also to pursue such a course. The manifold ways in which project may be related to course are the tests





and proof of the propriety of giving such a course.

3. As the course implies completed work by a teacher: project must always start with presumption of the student's utterly different point of view. This difference is, at least, in the item of completeness. The only problem the teacher may have is to teach what he has already organized. The student's problem is not of that sort, but to learn what for him cannot yet be organized. The two points of view can never be the same.

4. It follows that the teacher cannot ideally set the problem nor organize the project, though he may be, should be, better able to do it. It must be in the nature of project that its device is developed as the learner's way to learn.

5. It is consequently not, ideally, in the nature of project that it should be possible to completely furnish its structure of procedure ready-made, nor in fact that its procedure should be complete before-hand as a scheme.

6. Project may not be conceived as being initiated by the student out of complete ignorance, complete lack of experience. It is, in other words the method of finding the apperceptive capacity of the student.

7. If the student is not prepared to construct pertinent project he is not prepared to pursue the course. It is the sufficient test of the individual student's readiness for the course proposed.

8. The project is the individual student's "way into" the course. It is the method of adapting the course to him as an individual. Project is active. If the student cannot pursue the



route of project, he cannot do the work of the course.

9. Conversely (to 8) a "course" is not a course unless its organization implies individual work, i.e., individual approach to the course through the active thinking of individuals: which is project.

10. If project is necessarily (see 4) to be constructed and planned by the student whose project it is, it must by so much the more be the individual's choice of method of attack.

11. It is part of the teacher's business as planner of the course to furnish abundant suggestion of problems which the course implies. Ability of individuals to recognize these as problems at the outset is some measure of their apperceptive readiness for the course.

12. An initial qualification of the teacher, then, is power to bring into view at the outset a maximal number of the problems the course may be expected to solve, which are so stated as to "appeal" to the well prepared. The test their mere statement makes is a legitimate test of the individual's experiential preparation to take the course.

13. It is a fair test of the teacher's preparation that he finds many of these problems still food for his own thought. It is clearly a stamp of inadequacy in many a course that the teacher is no longer a student in it - that it has no real problems for him.

14. Another test of the vitality of a course will be current with its procedure. If no problems arise which were not stated in the premises there is a guaranty of stagnation. It seems unlikely that a single problem taken at the outset should be the





only and final "avenue of approach" to be followed by the individual as "his way in." A "term thesis" might be sufficiently prolific in its spawn of germane sub-problems to answer this requirement; and such an ideal in its selection would not be bad; but it argues extraordinary foresight or good luck that original problems should not subordinate themselves inductively to larger problems which could not be stated at the outset.

15. One's past experience is his apperceptive "context" at the beginning of a course. He is well-prepared, if it is rich and functions readily. But a course is itself under obligation to make definite connections for the individual with this experiential mass. If a problem is a problem to me, that is the credential of my readiness; but it has no particular road in which to go forward without project. My ability to make it project is the real proof of my ability to enter into the course. Project then becomes my expanding context, in a way, for the whole lore of the course. I "go in" on project, by virtue of project's adequacy as the rational continuation of my previous experience. If this project is well chosen and constructed it becomes an open avenue to broad areas of the course. A well-chosen term-thesis, regarded as genuine project in a course, becomes the individual's context, which is but a technical term for the meaning, perhaps of the whole course, for him.

16. To the psychologist "meaning" is the context of thought—or better—of thinking. Without project or something that amounts to it, it is a matter of no particular moment that time goes on or a course "proceeds." With genuine project each individual has a course because he is cultivating a context for it. It



apparently often happens that no one really "goes through" a course but the teacher, and the course may be a shabby farce to him, though once real, because he has worn out the context that was once alive and carried it. It is not impossible that, except for new courses, there is no salvation for a teacher himself except in new projects for himself.

17. Project is the item of method which typifies the most significant generalization that can be made as a distinguishing characteristic of collegiate education. Without such supplementation to ideas which have prevailed as that which project gives in reciprocal completion of the ordinary idea of a collegiate course, the college has not found its center of gravity. The cultural college has no primary purpose to serve but to integrate the education of individuals. Atomic isolation of departmental courses seems very unlikely to effect such integration. Perhaps the least that can be done is to force the issue of integration by disallowing the orthodoxy of methods that presume isolation. Courses of specialists as now given encourage isolation, while teachers either neglect or decline the obligation to serve as integrative agencies for individual students. Legitimate projects may follow the same lines of cleavage, but it is in the nature of project to start with a whole of experience which gives no color, in itself, to the finality of isolation. Separate sciences are agencies of economic inquiry; to the purposes of scientific inquiry, they are necessary, and so to the ultimate purposes of the real student, but the catholicity of view which project requires is much more conducive to the immediate educational needs of the college student as an individual than is the specializing tendency





of the separate sciences. Without genuine catholicity we apparently shall not dispense with the false distinction between "science" and "humanity," though the fiction is utter, and the crying need of the liberal student is obliteration of its false demarcation. It is in the nature of genuine project to disregard such distinctions no matter in what subject its course may stand. The graduate project is a still more specialized pursuit than are the courses themselves in the department in which it is prosecuted. But the undergraduate's projects through which he enters into the riches of a liberal education are ideally expressive of a humanoscientific unity not conceivably to be had except in the integrated education of an individual.

18. The attack made through project, which implies no inherent superiorities in fields of knowledge inherited from false cultural distinctions, which makes its estimates of value otherwise than by traditional prestige of any science, that consequently presupposes the right of no subject to be the favored carrier of culture, and finds what values subjects can contribute expressed finally in terms of their usefulness.- Such attack holds the field for the integration of human individual culture because it has sincerely disallowed the assumption that culture resides in subjects of study instead of in persons. We have much evidence that culture secured by awkward presuppositions has, because of the very ineptitude of the doctrine, but the more strongly declared its human character. There is some evidence that correct method has evinced itself even when it has not been credited, and much evidence that in the midst of the ineptitude or perversity of pedagogies, real problem has declared itself and genuine project



has happened to be the fruitful method followed.

19. It would be unfortunate to so exaggerate the pedagogical serviceability of project as method as to set it over against subjects of study. To do so would be to imply too little appreciation of the significance of the sciences as they delimit themselves. The organic value of subjects of study as represented in courses and in teacher's syllabi is fully implied in presenting what seems like a wholesome supplementation. Experience comes to the student in real situations. The class lecture scarcely furnishes a situation in this sense, but is the normal supplementation to such experience. The teacher can help organize, and generalize, only such experience as the student has actually had.

20. Method of collegiate work is a new field. It is worth while to note carefully where it may profitably copy, where it has new aspects not represented in lower schools, and where it may make new history. There are some presuppositions which ought to be looked into. One is that certain subjects have a monopoly of appreciational opportunities, for example, and that this character of subject matter dictates appropriate methods. The presumption that subjects of study determine methods is more plausible where learning is passive and teaching carries the method. It marks artificiality as contrasted with the point of view that situations conceived or adopted by students as the medium of their learning give wholes less to be characterized by particular, than by variety of, methods. Methods are artificially selected when determined by anything else, as compared with their determination by problems themselves. A problem is only half a problem if its problematic character does not help to determine the methods to be applied.





It is the more educationally important if the methods work themselves out as intrinsic to its problematic character. As a real situation instead of an artificial subject it will be strange if it does not involve many methods and ingenuity in their selection.

One thing project ought to do is to liberalize method, break up its tendency to become stereotyped, and discourage the partiality which disqualifies method for whole situations.

21. By inept pedagogy a good deal of the native inventive-ness of childhood and youth has been lost. In college we do not even bid for it. When project begins to amplify itself it may take on some of that vitality which begins to intrude itself into the "commercialized" projects of vocational schools. To presume it a distinction of cultural education to estrange itself from the crude verities of every day living is but to throw light on that point of view where ignorance of the world while in college is exchanged for ignorance of college as soon as one is out of it; but it is, worse than that, the false idea of safety which throws the best ammunition into the ditch. A boy in the shop connected with his school may immeasurably enhance the educative value of his project by making a Morris chair salable for fifty dollars. How do we know that other instruction than that in manual skill might not enormously increase its seriousness by being made to "bring something"? It is not proved that democracy might not be considerably profited by solutions which disinterested college students might have brains as well as leisure to work out. The schemes worked out for their collegiate politics are earnest of their ability.

22. It will be easy to misunderstand project. A project's meaning will not be simply one of the points of view from which a



given situation may be looked at, but ideally a project is the only way in which just that thing may properly be done. A project is not only something to be done but a method of doing it. It is not a dogmatic and arbitrary way but a way inherent in the thing to be done. This is why a project is educative in its nature, a way to do and learn something. There is no choice against it except not to do it. Part of a problem is the method of solving it. Method waits for problem, and is determined when the problem is correctly stated. Project will close the controversy between direct and indirect learning and open as many questions about learning as there are possible projects. Learning must be intrinsically interesting to a person of normal curiosity. Project will legitimize any kind of learning that is appropriate procedure of project.

23. Project exemplifies the difference between "teaching subjects of study and teaching persons." If it is in operation, attention is given to individuals as motive for teaching subjects. Individuals are not known because pedagogical doctrine says they must be, but because what we intend and try to do as teachers forces the issue of knowing the projector of a project in an inevitable way. Its necessity to the accomplishment of our function as teachers makes reason enough for knowing individuals. This constitutes the difference between teaching persons and teaching subjects. What shall a student who has a mathematical project learn? and what shall his teacher teach him? Neither will have to consult a formal schedule to know while the project is demanding certain knowledge for its performance and solution.

24. It is worth stating, subject to proof, that project tends to answer certain fundamental requirements in the psychology





of learning. The values of "whole method" are certainly not to be sacrificed when the procedure, by its nature, has its unit created as a whole, rather than selected as a whole. In learning to memorize by parts or by wholes explanation of the preterability of wholes is not far to seek when the facts have been demonstrated. The explanations may or may not be the right ones, and their value depends upon their general plausibility, but an important difference between such wholes and the whole of project may be a still more plausible theoretical reason for the superior learning value of project. The whole which facilitates memorizing is for its purposes apparently only an artificial whole in the sense of its avoiding setting up unprofitable associations which hinder when parts are gratuitously abstracted from it. It has doubtless also much positive advantage (depending in amount upon the unity in it) in establishing intra-associations of its own completeness. These repetitions gives occasion for stamping in by whole method, where part-method repeatedly breaks some of them. But this degree of the unit's wholeness is a somewhat speculative factor, and is in any case a wholeness intrinsic in the given matter and not a wholeness for whose actual creation the learner has been in any way responsible. "Wholes for purposes of education are not, however, physical affairs. Intellectually the existence of a whole depends upon a concern or interest: it is qualitative, the completeness of appeal made by a situation." The whole of a poem which I memorize I more or less perfectly use to facilitate its memorization. It has meaning and I more or less perfectly apprehend it. The whole of a genuine project is meaning which it has for me largely because its unity is my conception of it as a



problem. Whatever learning value the 'determining tendency' of problem has is in project by hypothesis, while it is absent from a memorizing task equally by hypothesis.

25. There are some interesting contrasts on the face of the difference between teaching by lectures or lessons or in any units wholly the teacher's, even by projects which are the teacher's, and teaching by students' projects. By appeal of an intrinsically interesting concrete illustration, (itself by the meaning of that phrase, a separate unit) the teacher holds the attention of his class. When it is finished that attention relaxes and the burden is thrown back upon the teacher. Facile passive attention resigns in favor of the effort of active attention, which now the auditor must give or be lost. The teacher indeed has a 'project' for which he has made himself responsible. Is defect of learning to be found in this fact and what it implies of default in the student? The person who has a project is the person who shoulders a task and feels its obligations. Is the problem of shifting the task which must be shouldered, if learning is to take place, conceivably one which exhortation may effect, or even an unremitting stream of brilliant illustrations bring about? The pertinence to the main issue is always problematical in illustration or exposition. There are two possible defects at least in teacher-project. One is that the responsibility has been assumed by the wrong person; the learner is absolved. A graver fault, if possible, is that, instead of the initiative task of framing thinking for himself the learner is charged only with the doubtful obligation of accepting and trying to appropriate another's frame of thought. The teacher may temporarily secure oblivion to this





natural resistance by clever devices, but he may pay the heavy penalty of occupying the focus, to be sure, but with matter of only measurable relevance. Most minds seem to be willing to be fully occupied only by the projects which feel like their own. Mental proprietorship seems inseparably connected with the attitude we are calling project-attitude.

26. Learning requires that the learner shall eventually organize for himself what he learns. Without project of his own he is dependent upon uncertain, unreliable, and unsupported "native-interest." This tax may fall without a motive in himself and even without an occasion in himself for meeting it. There may be default of individual motive; there is sure to be default of the cooperative effort of himself and teacher, which project gives him and, through him and his motive, draws from the teacher.

27. Project dispenses with much of the artificial incentive otherwise invoked. Without it we lack the occasion for making one a measure of one's own attainment. We get all the disparate results of mass effort and try to measure by the generalized standards which are all we have left to judge by. We measure the attainment of neither the best nor the poorest nor the impossible "average individual." We apply common measures to incommensurables and do justice to none. Project is the one way to make the individual the just measure of his own attainment. The occasion for measuring him in terms of others largely disappears and standards are saved from the folly of attempted impossible generalization. The integration of collegiate work upon the individual student is unthinkable except in terms of project as individual procedure. The consequent type of organization for a college will



prove to be largely contingent upon the possibilities of project.

28. "Secure initiative!" is not a solution, but itself a problem; but it is significant in connection with project that it is especially appropriate to collegiate age and stage of development, to say nothing of the fact that its kind of initiative is just what the collegian is otherwise deprived of. The collegian's college residence is often a notorious deprivation of the most wholesome types of self-dependence, which would have been his in an alternative employment of those years. His age and maturity and especially his capacity for project raise its pedagogical value to the highest point.

29. It only needs noting that the use made of the word project serves to distinguish a type. In elementary education the need of help from the teacher, the lack of individual initiative, the need of cultivating situations essentially social as the normal environment of childhood education and other considerations conspire to demand social rather than individual projects. Again of individual projects we must distinguish that of the graduate specialist. But a graduate specialism can and often does depart progressively from the claims of personal culture. It may be, and it may not be, in reality, an educative procedure. Project as we use the word is in essence educative, establishes its center in an educative situation and subordinates all its elements to an educative purpose. Its problem is real problem, not soluble by team-work, not a problem of mere adjustment but of individual development effected upon individual responsibility, inaugurated on individual initiative and sustained by individual power.





## CHAPTER XII

## THE INTEGRATION OF THE COLLEGE

An Example of Project

The purpose of this chapter is to indicate a type of college that could satisfy the demands of individual project as leading principle in collegiate student-method. Various items of procedure representing the idea of individual project and otherwise exalting the principle of coherent and protracted individual responsibility are observed in the practice of a few colleges already interested in experiment. Reed College, for example, requires an undergraduate thesis and gives an oral examination intended to assure a much more persistent grasp of some one field than is ever implied in courses "finished," dismissed, and forgotten. To assure an economic devotion of its plant and faculty, it consistently tests for power to do such things, and admits only persons believed to be both able and willing to do collegiate work worth while. Nothing about such a type of work conflicts in any way with a purpose to make the college a vital institution; rather the contrary, if we keep collegiate work true to the doctrine we have been following of the essentiality to each other of subject matter and method. The whole story of the brain as an integrative organ is by no means told when it has simply accounted for self-preservative adjustment to the impinging environment of the organism. To be a collegiate student in any fair modern acceptance of the term involves method which is an integrative factor of a kind that makes the person "a part of the world, sharing its vicissitudes and fortunes, and making itself [the organ-



ism] secure in its precarious dependence only as it intellectually identifies itself with the things about it, and, forecasting the future consequences of what is going on, shapes its own activities accordingly. If the living, experiencing being is an intimate participant in the activities of the world to which it belongs, then knowledge is a mode of participation, valuable in the degree in which it is effective. It cannot be the idle view of an unconcerned spectator."<sup>1</sup> The individual's education cannot be fairly conceived of except as the integrative factor in a progressive continuity of process.

But before stating the main features of such a college as individual project seems to demand, a summary of the doctrine of project in concrete terms will help to objectify the aim of such method. In the last chapter a partial list of precepts was given. A project of my own was to go through Dewey's *Philosophy of Education* with the single purpose of collecting precepts arising from the cognitive aspect only of learning. Collecting, assorting, studying these, using them to test each other and to test the whole theory, while the whole theory was used to test and re-test them, made this a problem that exhibited features of a project. Better than to take space even to list these scores of precepts of learning (which must largely remain my project), a small group of the most coherent and briefly statable precepts may be given and their application illustrated.

The teaching problem where they are to be applied is this: A class is beginning the study of comparative school systems. It is desired to find the 'context' of individuals for such a course,

<sup>1</sup>Dewey, Philosophy of Education, p.392-3.





and to supplement individual context by appropriate individual project, suggested by the teacher but chosen (so far as possible) by the individual student. A part of initial procedure would be to post a large number of questions like those which follow, to be read over and finally chosen and checked on the bulletin board by individuals. (Promptness in writing his name opposite the question he chooses widens the individual's choice, of course).

I quote a passage<sup>1</sup> which gives sample questions:

"Among proposals for educational reform agreed to by the executive of the National Union of Teachers, and recommended for adoption at the close of the war, are the following:

Education to be free through all its stages, including the university.

Education to be compulsory from five to eighteen, and every young person to be required to show that he is receiving in a recognized institution education sufficient and satisfactory.

Local education authorities to make by-laws providing for full-time attendance to 14, and to have power to require full-time attendance to 15 or 16, but in each case partial exemption for beneficial employment.

(Followed by several other proposals of similar tenor).

These topics from a single source are to be supplemented by a great variety, preferably collected, like these, from actual sources. The first one of these may serve the purpose of illustrating the precepts which now follow.<sup>2</sup>

1. To secure thinking is to secure the bringing to con-

<sup>1</sup>School and Society, May 5, 1917, pp. 533-4.

<sup>2</sup>They are numbered for subsequent reference. The numbers following some of them refer to pages in Dewey. These precepts come chiefly from the chapter on thinking.



sciousness of some disposition with a view to straightening out a perplexity, by conceiving the connection between ourselves and the world in which we live.(399)

2. The power to see any fact as general will result from good teaching— general because used to give meaning to a new experience. Habits of seeing things as not isolated, but connected with the common experience of mankind, are the fundamentally important habits of thinking.(399)

3. Problems for students should not be 'problems of science', that is such as would occur to one already initiated in the science of the subject. (259)

4. A matter of study may have any sort of value depending on the situation it enters into as a means. It should be studied for its intrinsic contribution to the experience of life. If a student responds, his response is use.(283)

5. It finds its motive in the same way.

6. The first stage of contact with any new material of whatever sort must inevitably be of the trial-and-error sort.(181)

7. The first approach to any material must be as unscholastic as possible...as devoid as possible of routine and capricious activity...as nearly connected as may be with existing habits that will call out effective response...that is, not haphazard nor inconsequential activity. It must involve a good problem.(182)

8. It must be recognized, how much is problem and what is in the situation that is not problem.

9. It must be the student's own problem.

10. The materials of thinking must be discerned, as not thoughts, but actions, facts, events, and the relations of things.(184)





11. The difficulty of the problem must be great enough to challenge thought...small enough to leave luminous . familiar spots from which helpful suggestions may spring.

12. The subject matter for reflection may be supplied by memory, observation, reading, communication— any psychological means that will yield data. The specific features of the problem in hand must regulate the relative proportions of data from different sources. (185)

13. To secure a well trained mind there must be (1) an abundance of resources (2) a habit of going over past experiences to see what they yield.

14. Thinking must then supplement 'data' with 'ideas'. Data are 'facts'. 'Ideas' are active mental principles— suggestions, inferences, conjectured meanings, suppositions, tentative explanations. (186)

15. Careful observation and recollection determine what is given. They define and locate the question.

16. Projection, invention, ingenuity, devising, must supply it.

17. The result must be a leap from the known, an invasion of the unknown. A thought must create...must be novel, involve inventiveness.

18. What is suggested must be familiar in some context: The novelty must be in the different use to which it is put. The operation is novel, not the materials.(188)

Bear in mind the purpose of the course, which is to learn something about school systems by comparison; and consider the eligibility of the first proposal quoted as statement of a problem



for a student making a beginning in such a course. In some school system somewhere there is a proposal now that "education shall be free through all its stages, including the university." A teacher of the subject knows that this statement made in untechnical language is nevertheless capable of taking its part through practically every phase of every main inquiry in the course. The person who sincerely sets himself to know the facts implied will know the subject matter of the course. This is what is meant by the individual student's project being "the student's way into the course." When he has canvassed the questions involved in this one statement he will have traversed the ground the course proposes to traverse, but with his own context. (1)<sup>1</sup> It states a perplexity which is to be straightened out. To complete its solution (at least in the case of this project) is fairly to canvass the most important features of school systems. (2) Until the fact (of free education) has been generalized in terms implied by the purpose of the course it is a fact in severe isolation, no matter how untechnically stated. Even the layman who knows what the words mean does not know what the statement means until he has generalized the fact by such study as the course implies. (3) It is not a 'problem of science' at the outset, but inevitably becomes such, which is but to say that he ceases to become a 'layman' and in these facts becomes a 'scientist'. (4 and 5) To know what free schooling means is to know about something intrinsic to experience of current life. It must be responded to because it has its motive in it. (6) With ignorance of everything but the barest meaning of the words one has, nevertheless, the suggestion for the simplest

<sup>1</sup>Numbers refer to the precepts above.





excursion into facts to find the pertinence of "free" to "systems of education." (7) The statement is unscholastic, nothing can make it scholastic except the legitimate terminology of the course proposed. It is a challenge to any "well informed" person. It is a good problem for anybody. (8) No better beginning could be made by anybody proposing to take the course than to inventory his context by these unscholastic statements. No better first aid could be brought to the teacher, who otherwise moves uncertainly in unknown depths of ignorance, or wastes his efforts in shallows of ready knowledge, which to repeat, is but to invite ennui. (9) It is the student's own problem if it reflects his ignorance from the surface of his sincere purpose to learn. (10) We start with facts, events, and the relations of things. (11) The problem has difficulty enough even for the teacher, but is ideal matter for project, because it is not too difficult as a beginning for the student; challenges anybody's thought, but has "luminous familiar spots from which helpful suggestions may spring."

(12) Having adopted as one's project the question of free schooling in systems, one is ready for data. Information is "the bridge of the mind...from doubt to discovery." The want of information and the search set up to get it are the signs of problem and the intention to solve it. Suspense, uncertainty, doubt, problem: then thinking with its purpose to conclude suspense. It must be found possible to make hypotheses toward this end. Doubt must be utilized. Thinking demands after (a) problem, (b) the observation of conditions, (c) the making of hypotheses, (d) testing hypotheses. With these one is committed to the issue, has concern with it, takes responsibility for it as a quest— is en-



gaged in reflection.<sup>1</sup> Memory, observation, reading, communication (a student's reason for a teacher appears) — any means that will yield data. (13) The reasons for sources of information arise with the student himself and the teacher is drawn upon. The method of 'projection' is one which is largely comprised of instilling the habit of searching past experience and present available resources to see what they will yield in a specific given direction. (14) Problem-solving turns, however, as a reflective performance, upon the part 'ideas' play with 'data'. The 'facts' anybody may have, but they play a part in solution only when they are manipulated by ideas. What country is only just debating free schools? Why? What is the present occasion? What is the experience of other countries with free schools? What advantage or occasion did they have? Does anything they possess as advantage hang upon the fact of free schools? Shall the maintenance of free schools be expected to effect certain improvements? How account for their not having been accomplished here? etc., etc., — suggestions, inferences, conjectural meanings, suppositions, tentative explanations. (15) Facts are to had which will answer many of these questions, at least in part: partial answer to each helps to bring the problem to a head. (16) For the rest, project, invent, try ingenious answers, devise a final hypothesis and try it for solution. (17) Then finally if one knows, when through, something of which one was ignorant before, not simply as information in answer to questions one has never asked as one's own, but questions which this process has devised, and answers, one has "invaded the unknown." (18) But the idea of free schools, since it must be a possessed conception to the student we have in mind, is not new. It is his old context,

<sup>1</sup>Op.Cit. pp.171-178.Chapter XI, Experience and Thinking.





in whatever way he may have had experience of free schools. The real novelty is what he has taught himself of its manifold pertinence as a conception. He has made an excursion to a point to which, so far as his thinking is concerned, nobody else has ever gone.

### Collegiate Project-Thinking

The purpose and method of this study of collegiate education must be exhibited briefly in review, before suggesting its institutional application more specifically than was done in the last chapter of Part I. A philosophy of education was adopted which builds up a doctrine of thinking as the most characteristic human activity. While thinking is not relegated in that philosophy to any period of human development exclusively and while that philosophy's first claim is for the social character of learning, we have for our purposes both emphasized the peculiar appropriateness of thinking, and learning to think, as the absorbing demand in a period which we call that of "making students"; and still more emphatically, if possible, insisted that the collegiate period is one in which sociality gets its meaning through the development of individuation. In other words, it was maintained that, while thinking is universally the essential activity of learning, thinking as a mature art justifies devotion of an appropriate period of the life of carefully selected eligibles to the cultivation of thinking itself. While this is a demand rather than a discovery, this philosophy of education, which is a philosophy of learning to think, justifies that demand on the practical side by supplying an exposition of the science and art of learning to think.



In process of such an exposition it appears that learning to think exhibits much unity of type through the universal appearance in it of what is called 'problem', involving solution of problem as an expression equivalent to thinking-activity. We profit by the proofs furnished by the author of this philosophy that this identification of problem as its central feature neither discounts other features of thinking nor allows them to be considered as disconnected. Our own selection of the fact of problem for emphasis as characteristic of collegiate student-thinking tries consistently to pursue this theme under the applied form of 'project', similarly without estranging other essential features of a doctrine of thinking. This study of problem-thinking in the form of what are called 'individual projects' with a 'liberalizing' purpose is addressed to collegiate teachers as suggestion for 'general method'. The real test of such suggestions must come finally in efforts of 'special method' to build up a practice in the teaching of collegiate courses based upon the doctrine of individual project. Readiness of collegiate students, however, for an expectation from teachers of a more serious initiative on students' part, is taken for granted. The theory banked upon is that a revival of student-seriousness must come through the conviction that better teacher-procedure will follow a better discernment of the precedence of learning procedure as its determinant. This is one of many appeals made to the experience of elementary teachers.

The central fact of collegiate education, then, the student, with a central purpose, to facilitate his growth in power to think, implies a teacher and a pedagogy for the college. A student, a





teacher, a purpose, and a pedagogy argue an institution. The conclusion of the whole study is, like the conclusion of its philosophy, an argument for an institution.

It happens that the writer has been engaged for fifteen years in a study of the main proposal, viz., that collegiate education deserves an institution of its own. In the midst of an experiment whose history can be only alluded to here, the main proposal was set forth a decade ago in terms of the thesis that a cultural college deserved a pedagogy. This study has aimed to add to that affirmation an effort to state a philosophy supporting at least a beginning of the pedagogy there frankly sought. There was then expressed the conviction that all results of the experiment then in progress pointed toward the legitimate function of the separately habilitated cultural college. The findings of the present study are that there is such a function and that it is increasingly capable of being expressed in terms which justify institutional expression. Two papers which gave results of the experiment were published but only within academic circles in a collegiate publication. One<sup>1</sup> of these gives a statement of the original thesis, though the other<sup>2</sup> is more minutely an account of results of experiment.

### The Type of College Implied

In conclusion it seems not out of place to hold that the study of problem-thinking expressed in individual project supports the belief that such a collegiate purpose will dictate the type and style of the liberal college. It is not impossible, but seems unlikely, that it should readily find place as one of the colleges

<sup>1</sup>Liberal Culture and the Academic College, Clark College Record, July, 1906.

<sup>2</sup>On the Approach to the Seventh Year of Clark College, Ibid., April, 1908.



of our present universities, — unlikely because it is there that the academic college has suffered the institutional eclipse which has obscured the issue of the student as a student. It seems more likely that this issue must have separate appreciation and treatment. The tendency of universities is to objectify their purposes in quite other terms than those of devotion to the personal cultivation of students. This stricture is laid solely on the side of organization.

Individual teachers in the university do such justice to individual students as their leisure allows and their professional consciences dictate. This leaves the matter to a chance that is weighted against the student in the premises of institutional organization.

To outline the machinery which should make up the organization of such a college would be impossible in a concluding word. It is summed up in the changed point of view demanded. It is evident that only a small college made to serve the specific purposes of united cooperative effort to "make students" would answer to the exemplary demand. We have now only faculties of subjects. We must have faculties of students. We have studied the interrelations and integrations of subjects of study. The college implied must be integrated on the issue of the success of individual students. The responsibility for the individual student's success may not without disaster be put upon faculty even so much as it is now. To make the student less self-directive than now would be to court his defeat. The large and inclusive question is the question of organic provision for the student's success in initiative. The study of advisory organization is part of the administrative side of the question. Beginnings have been made, and a wide-spread interest in individual instruction and vocational





guidance has been discovered in college and university faculties. Publication of experiments already reported in organizing advisorship in colleges throughout the country would be substantial proof that the issue is increasingly appreciated.<sup>1</sup> The results of efforts to advise students under present conditions are bound to be minor, because they are mere palliatives except as part of a more radical régime. A size for the type of college we have in mind might well depend upon such a ratio of staff to student-body as would give each student a committee of the faculty able to act with much deliberateness and intelligent enthusiasm under his own chairmanship, upon his course, and his work in the subjects that should make up his course, organized and regulated by their wisdom in support of the student's initiative. (p. 69).

The presumption of "imparting information" as a teacher's business is a deep-seated tradition. While it prevails exclusively, however, we are without a stimulus which is necessary to collegiate vitality. It must give way in any collegiate situation the moment there are purposes and individual researches sponsored by students themselves. Our teaching attitude will not cease to be complacent, as long as our teacher's scheme of thinking is the only one broached or intended. On the other hand that complacency will be wholesomely dissipated the moment we as teachers are in the presence of companions in research. Nothing can so surely save

<sup>1</sup>Such information was gathered a few years ago by a committee of the faculty of Stanford University, and painstakingly prepared for publication by Professors Guido H. Marx and George H. Sabine, chairman and secretary, but unfortunately not published. Less attention seems to have been given to the subject lately.



from the dead level of mere didactic impartation of information, as the vital stimulus to the teacher which comes from the student who is an aggressive thinking learner. For purposes of collegiate instruction we cannot too soon accept the doctrine that "ideas...are intrinsically standpoints and methods for bringing about a solution of a perplexing situation..."<sup>1</sup>, we cannot too soon abandon the notion that ideas may be passively transmitted from him who knows to him who will know without thinking. Complacency increases as we go up the grades, until the college-student gropes in the darkness that precedes the dawn of individual work in the university.

Our study has gone no further than to suggest help on the student's side of such courses as the present régime gives us. But the logic of conclusion compels an honest statement of the mode of organization which full acceptance of project implies.

Whatever license the community grants to student-lawlessness — now happily out of vogue and very rapidly passing — is a survival, even if but a tradition, from the day when only the faculty was responsible for students' acts because there was no student autonomy.<sup>2</sup> We are now in the midst of a similar intellectual condition. Until the student is given a real chance to take the reins of his own intellectual responsibility, we shall be found trying to regulate intellectual conduct by the petty devices which take minute account of when and how a man takes a holiday, as if that regulation could touch the vital features of his collegiate conduct in any way whatever. We have done pretty well with general physical self-control, at least as well as could be

<sup>1</sup>Dewey, Philosophy of Education, p. 210.

<sup>2</sup>Briggs, L.R., School, College and Character.





expected while tests of intellectual fidelity are so divorced and meaningless. All the autonomy of a student must be cultivated in him. Mere decent treatment of the community in which his college happens to be is but barely bringing the student up to the level of a tolerable citizen. It has not touched the evidences of his naturalization in the community of tolerable scholars. There seems little likelihood that the student should ever take any personal pride in attainment which he always states in terms of teachers' requirements. Such a credential to intellectual citizenship is too trivial for adults, and we know it as well as the student.

Initiative is a principle which 'project' as a precept is intended to help secure. After all it is a limited initiative that will be secured through our book-keeping which summarizes the "results" of humanly uncorrelated courses. A better conception of 'project' is that implied in the 'undergraduate thesis' than in the term-thesis of a course. The project which forces the co-operation of teachers upon the issue of a student's individual work is the project that may be expected to get a new type of service from teachers. The student has now his own unaided organizing to do, but without the organizing motive his 'correlating' project would supply. The small college that can organize its effort on the lines of faculty-group devotion to the integration of the individual student's work has the credential of sound pedagogical reason for its separate organization.



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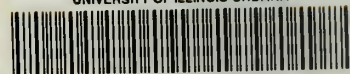
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